The Mining Journal

RAILWAY AND COMMERCIAL GAZETTE:

FORMING A COMPLETE RECORD OF THE PROCEEDINGS OF ALL PUBLIC COMPANIES.

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MR. JAMES H. CROFTS, STOCK AND SHARE BROKER, AND MINING SHARE DEALER.
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MINES INSPECTED.

BANKERS: CITY BANK, LONDON; SOUTH CORNWALL BANK, ST. AUSTELL.

SPECIAL DEALINGS in the following, or part:—

25 Chapel House, £2 17 6	50 Javali, 8s.	50 Parys Moun., 7s. 3d.
50 Chontales, 12s.	25 Leadhills, £2 18s. 9d.	30 Rookhope, 14s.
10 D'Eresby Consols.	50 Llanrwst.	10 Richmond, £8¾.
15 East Van, £3⅞.	50 North Laxey, 2s. 3d.	50 Van Consols, 10s.
50 Flagstaff, 12s.	100 Penstruthal, 4s.	50 W. Tankerville, 3s.
25 Hultafall, £3¼.	50 Pestarena, 4s. 9d.	

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*** SHARES SOLD FOR FORWARD DELIVERY (ONE, TWO, OR THREE MONTHS) ON DEPOSIT OF TWENTY PER CENT.

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SPECIAL BUSINESS in the above, and Fortnighty Accounts opened on receipt of the usual cover.
JAMES H. CROFTS, 1, FINCH LANE, LONDON.

RAILWAYS—HOME AND FOREIGN.—SPECIAL BUSINESS in the above, and Fortnightly Accounts opened on receipt of the usual cover.
JAMES H CROFTS, 1, FINCH LANE, LONDON.

MISCELLANEOUS AND TRAMWAY SHARES.—SPECIAL BUSINESS in—

MISCELLANEOUS.	Royal Aquar. (Westm.)	North Metropolitan
Alhambra Palace.	London Steam-boat.	Tramways.
Brighton Aquarium.	Lawes Chemical.	Tramway Union.
	Globe Telegraph.	

BUSINESS TRANSACTED in all MISCELLANEOUS SHARES (of whatever description) having LONDON or COUNTRY MARKET VALUES.
JAMES H CROFTS, 1, FINCH LANE, LONDON.
Bankers: City Bank, London; South Cornwall Bank, St. Austell.
ESTABLISHED 1842.

MR. W. H. BUMPUS, STOCK AND SHARE BROKER, AND MINING SHARE DEALER,
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ESTABLISHED 1867.

BUSINESS transacted in STOCK EXCHANGE SECURITIES and MISCELLANEOUS SHARES of every description.
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35 Almada, 6s. 6d.	30 Flagstaff, 11s. 3d.	60 Parys Mount., 6s. 9d.
50 Aberdaunant.	120 Gold Run, 4s.	50 Port Phillip, 10s 9d.
40 Blue Tent, £2½.	70 Glenroy.	120 Penstruthal, 4s. 6d.
98 Colorado, £4¾.	10 Grogwinion.	75 Pandora.
150 Cedar Creek, 4s. 3d.	5 Great Laxey, £19¼.	10 Roman Grav., £7 9 16.
70 Chontales, 12s. 3d.	40 Hultafall, £3¾.	50 Rookhope, 15s. 6d.
20 Cambrian.	100 I.X.L.	15 Richmond. £8 9-16ths
50 Don Pedro, 11s. 3d.	50 Javali, 7s. 9d,	10 South Frances, £3⅞.
60 Derwent, 26s.	30 Kapanga, £1⅞.	20 Tankerville, £3½.
20 Devon Consols, £2¼.	25 Leadhills, £2 13 16ths.	10 Van, £18½.
15 Eberhardt, £4.	30 Llanrwst, £1 13-16ths.	25 Wh. Grenville, £2¾.
10 East Van, £3 13-16ths.	40 Marke Valley, 13s. 9d	50 W. Godolphin, 7s. 6d.
40 East Caradon.	20 New Quebada, £1¾.	5 West Chiverton.
25 Frontino, £2 13-16ths.	10 Pateley Bridge, £4¾.	100 Yorke Penin., 4s. 6d.

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100 Aberdaunant.	20 Frontino, £2 17s. 6d.	20 Parys Mountain, 7s.
20 Bodidris, 25s.	50 Flagstaff, 11s. 6d.	10 Pateley Bdge., £3 18 9
20 Birdseye, 16s.	20 Grogwinion, £2¼.	100 Penstruthal, 4s. 6d.
20 Blaen Caelan, £4 2s 6d	30 Glenroy, 12s.	10 Richmond, £8 11s. 3d
20 Cambrian, £2 12s. 6d.	20 Gorsedd & Mer. £4½.	25 Rookhope, 14s.
50 Chontales, 12s. 3d.	25 Hultafall, £3 2s. 6d.	100 Rossa Grande, 2s. 3d.
20 Chicago, £1 2s. 6d.	25 Last Chance. 18s.	10 Roman Grav., £7¼.
40 Colorado, £4 6s. 3d.	15 Leadhills, £2 12s. 6d.	15 Tankerville, £3 12s. 6
20 Court Grange.	30 Javali, 8s. 3d.	40 Tyn-y-Fron.
5 Cape Copper, £20¼.	20 Llanrwst.	3 Van, £18¾.
75 Don Pedro, 10s. 9d.	20 Marke Valley, 11s. 3d	5 West Chiverton, £5¾
20 East Lovell, 5s.	30 Morfadu, 14s.	5 Wh. Grenville, £2 1s 3
15 East Van, £3 17s. 6d.	25 N. Zea. Kap., £1 17s 6	40 W. Wye Valley, £2 5s.
25 Eberhardt.	20 New Quebrada, £1 18.	25 Wye Valley, £1 12s 6d
100 Exchequer, 7s.	25 Pandora, 12s.	100 Yorke Peninsula, 5s.
	25 Pant-y-Mwyn, £5.	

Shares bought and sold at net prices. Telegrams promptly attended to.

MESSRS. PETER WATSON AND CO.,
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[Established 1848.]
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Chapel House.	South Frances.	Colorado.
D'Eresby Mountain.	Tankerville.	Chontales.
East Van.	Van.	Don Pedro.
Grogwinion.	United Mexican.	Eberhardt.
Glenroy.	Wye Valley.	Flagstaff.
Glyn.	W. Wye Valley.	Frontino.
Great Laxey.	West Chiverton.	Hultafall.
Leadhills.	Wh. Grenville.	Javali, 8s.
Llanrwst.		Last Chance.
Pandora.	Telegraphic Construct.	N. Zealand Kapanga.
Penstruthal.	North Metropolitan.	Pestarena.
Parys Mountain.	London Steam-boat.	Port Phillip.
Pateley Bridge.	Peninsular and Orien.	Richmond.
Roman Gravels.	Provincial Tram.	

BANKERS: LONDON AND WESTMINSTER.

FERDINAND R. KIRK, STOCKBROKER,
5, BIRCHIN LANE, E.C.

"THE WEEK."—A SEPARATE EDITION from that which appears in the *Mining Journal* is published every Wednesday evening, containing "Notes and Hints on the Stock Markets," with Closing Prices. May be had on application.

FORTNIGHTLY ACCOUNTS.—The principal dealings are now centred in Consols, Turkish Fives, Unified, Spanish, Bolivian, Chatham, Great Eastern, and District. The necessary "cover" may be learnt on application.
FOREIGN RAILWAYS.—Special Business in East Argentine, Mexican, Ottoman, and Varna.
MISCELLANEOUS.—A large business is being done in Government Stock Investment, Railway Share Trust, Odessa Waterworks, Hudson Bay, General Credit, and Royal Aquarium.
COLLIERIES.—The following may always be dealt in at close prices:—Bilson and Crump, Cardiff, Newport Abercarn, and Chapel House.
Bankers: London and Westminster, Lothbury.

MR. T. E. W. THOMAS, SHARE BROKER,
3, GREAT WINCHESTER STREET BUILDINGS, E.C.
Established 1857.
The following are the latest prices at which business could be done. Where the difference between the buying and selling price is wide transactions may be effected at an intermediate price:—

	Buyers.	Sellers.
Aberllyn	£ 10	£ 11
Argentine	3s.	5s.
Bodidris	1⅛	1¼
Cambrian	2½	3
Colorado	4⅛	4⅜
Chontales	11s.	13s.
Clementina	1	1¼
Denbighshire	1¼	1½
Devon Great Consols	2	2¼
Don Pedro	9s.	11s.
Eberhardt	3¾	4
East Caradon	8s.	10s.
East Van	3½	3¼
Flagstaff	9s.	11s.
Frontino	2⅝	2⅞
Glenroy	10s.	12s. 6d.
Glyn	9s.	11s.
Gorsedd and Merllyn	4	4¼
Grogwinion	2⅛	2½
Great Laxey	17	19
Hultafall	2¾	3¼
Last Chance	⅞	1
Leadhills	2½	3
Mellanear	3¾	4

	Buyers.	Sellers.
New Quebrada	£ 1¾	£ 2
New Zealand Kapanga	1½	1⅞
Parys Mountain	8s.	10s.
Pateley Bridge	3¾	4¼
Penstruthal	5s.	6s.
Plynlimmon	1s.6d.	2s.6d.
Richmond	8¼	8½
Roman Gravels	7¼	7½
Rookhope	12s 6d	15s.
South Condurrow	10½	11
South Frances	3¾	4
Tecoma	2s.	4s.
Temple	5½	6½
Tyn-y-Fron	1¾	1⅝
Tankerville	3¼	3½
Tincroft	6	7
Van	18	19
West Chiverton	5	7
West Godolphin	10s.	12s.6d
West Wye Valley	2	2½
W. Grenville	1¾	2
Wye Valley	1¼	1½
Yorke Peninsula	3s.6d.	5s.

MR. JOHN B. REYNOLDS, STOCK AND SHARE DEALER,
70 AND 71, BISHOPSGATE STREET WITHIN, LONDON, E.C.
Established Twenty Years.
Bankers: London—City Bank.
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Bankers: Barclay, Bevan, and Co., and London and Westminster Bank, Lothbury.
English and Foreign Stocks and Shares and all other Securities dealt in for cash or account.

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Messrs. ENDEAN AND CO., having just made a tour of inspection of the mines in this district, are enabled to give intending investors the LATEST AND MOST RELIABLE INFORMATION respecting the principal properties in this rapidly improving mining centre. Llanrwst, South de Eresby, D'Eresby Mountain, D'Eresby Consols, and Aberllyn. Valuable information as to the future prospects of these mines on application.

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MINING ENGINEERS AND INSPECTORS.
86, LONDON WALL, LONDON, E.C.,
Have Agents in England, Scotland, Wales, and on the Continent.

MESSRS. JONES AND HOUSTON, 25, CROSBY HALL CHAMBERS, LONDON, E.C., are prepared to do BUSINESS in the FOLLOWING SHARES:—

100 Aberdunant, 5s.	100 Eberhardt, £4¼.	30 Pateley Bridge, £4¼.
25 Argentine, 5s.	140 Flagstaff, 11s. 6d.	90 Pant-y-Mwyn, £5 10s.
30 Bodidris.	10 Frontino, £3.	200 Penstruthal, 5s. 6d.
10 Cardiff & Swan., 21s.	10 Gorsedd and Merllyn, £4 15s.	50 Port Phillip, 12s. 6d.
30 Colorado, £4¼.	25 Grogwinion, £2¼.	130 Plynlimmon, 3s.
100 Ch outales.	10 Gt. Laxey, £19.	30 Richmond, £8 15s.
40 Central Van, 15s.	25 Hultafall, £3¾.	40 Roman Gravels.
30 Chapel House, £3.	1 London Steam-boat (7 per cent. debenture), £120.	80 South Aurora, 11s. 6d.
100 Cedar Creek (off. w.)	30 N. Zealand Kapanga, 30s.	25 Tyn-y-Fron, £1 10s.
D'Eresby Consols.	200 North Laxey, 4s.	5 Van, £19.
D'Eresby Mountain.	120 Parys Mount., 8s.	20 Wye Valley, 30s.
5 Devon Consols, £2¾.		10 Wheal Newton, £3.
150 Don Pedro, 11s.		5 West Seton (off wtd.)
30 East Van, £4.		Yorke Peninsula.

Special Business done in Pant-y-Mwyn Shares, either as Buyers or Sellers. These share are strongly recommended for a great rise. The reserves of ore in the mine are estimated to be worth £250,000. Handsome dividends are being earned. Bankers: London and Provincial.

MR. CHARLES THOMAS,
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Dividends 4 to 6 and 8 per cent. per annum upon outlay.
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Established 1852.
Bankers: London and Westminster, Lothbury, E.C.

MR. EDWARD ASHMEAD, 62, CORNHILL, LONDON,
LONDON MINE AGENT, ACCOUNTANT, AND AUDITOR.

ABBOTT AND CO.,
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MR. JOHN SPRAGUE, Mining Agent, SEEKS a PERMANENT APPOINTMENT, or INSPECTION of MINES. Assays for Gold and Silver.—Address, Mumbles, Swansea.

FOR SALE (the whole or part):—

100 Bettws-y-Coed, 18s. 6d.	25 Glyn, 11s.	100 Parys Moun., 7s. 6d.
200 Court Grange, 17s. 6d.	30 Gorsedd & Merl., £4.	20 Mineral Copo., £10½.
100 Hultafall, £3¾.	20 Grogwinion, £2½.	50 Pandora, 10s. 6d.
50 Hornachos, £14.	20 Monydd Gorddu, £2½	50 Temple, £6½.
	20 Pateley Bridge, £4.	50 Tyn-y-Fron, £1¾.

Address, H. WILKINS, 3, Heybourne Villas, Tottenham.

LEAD DRESSER.—WANTED, an EXPERIENCED LEAD DRESSER.
Address, ISLAY LEAD MINES, Islay, Scotland.

A MINING ENGINEER in the country requires a SURVEYOR, with a knowledge of MECHANICAL DRAWING. Salary £100. A person capable of taking Shorthand Notes would be preferred.
Apply, stating age, past and present occupation, and giving references, to "Engineer," *Daily Telegram* Office, Newport, Mon.

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Notice is hereby given, that the Directors of this Company have DECLARED a DIVIDEND of ONE SHILLING AND SIXPENCE PER SHARE (free of income tax), PAYABLE on and after the 11th September, 1878.
And notice is hereby further given, that the Transfer-books of the company will be closed from the 4th to the 11th September inst.
By order of the Board,
J. JAMESON TRURAN, Secretary.
184, Gresham House, Old Broad-street, London, E.C., Sept. 2, 1878.

ENGLISH RAILWAYS, GOVERNMENT BONDS, &c.—INVESTORS and SPECULATORS for the account should DEVOTE ATTENTION to these SECURITIES. Our Selections for 1878 have risen 30 per cent., allowing of profits of 300 per cent. on the small requisite outlay. This is authenticated.
Selections for the season about commencing, and full particulars of Messrs. HUME AND CO., Crosby Hall Chambers, Bishopsgate street, London, E.C. Enclose stamp.

MR. J. ANDERSON, STOCK AND SHARE DEALER,
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LONDON, E.C.
Business transacted in Stock Exchange Securities and Shares of every description.
A List of Prices issued Daily, giving the Latest Quotations of all Stocks, Railway, Mining, and Miscellaneous Shares.
SPECIAL BUSINESS in Tyn-y-Fron Shares at latest quotations. The reopening of this mine under the auspices of such experienced practical managers is matter for congratulation to the shareholders, to Cardiganshire, and to the general public. All necessary machinery for making the lead and blende ores marketable are erected, and a handsome dividend is expected to be declared in December. Clients purchasing at the present price—£1 10s. per share—will, besides receiving good dividends, see their shares at a high price during the next six months. Immediate application should be made, as the market is a rising one; additional discoveries are expected at the mines which may treble the value of shares any day.

OPTIONAL OR PROTECTED DEALING IN STOCKS AND SHARES.
Full Prospectus on application.

WANTED—50 Cape Copper, 100 Devon Consols, 50 Fortuna, 20 Van, 100 East Van, and 10 Roman Gravels. State lowest price for cash.

DEVON AND CORNISH MINES.—It is worthy of notice that none of the mines recommended by R. J. R. have failed to yield satisfactory results; and investors will do well to write to the undersigned before investing, as he has a few shares in some very choice properties to dispose of.
R. J. RUTTER,
MINE BROKER,
5, PYNE'S TERRACE, ST. DAVID'S, EXETER.

Lectures on Practical Mining in Germany.

CLAUSTHAL MINING SCHOOL NOTES.*—No. LXXXVI.

BY J. CLARK JEFFERSON, A.R.S.M., WH. SC.,
Mining Engineer, Wakefield.
(Formerly Student at the Royal Bergakademie, Clausthal).

[The Author reserves the right of reproduction.]

SECTION V.

As an example of sinking through very quick ground by means of spilling the following, abridged from the description given by Thurnagel of the sinking of the shafts of the Friedrich's Colliery, near Tarnowitz, in Upper Silesia, is translated from Sickel's work on "Timbering in Mines."

The quick strata through which the shafts had to be sunk occasioning the use of this description of timbering are locally called "Kurzawka," which consist of a most intimate mixture of extremely fine (like dust) sand, clay, and lime, which, although apparently dry, contains a considerable amount of water, so that under the access of large quantities of water it becomes so completely disintegrated and fluid that it bursts through the smallest openings with considerable force.

The sinking of the shafts commenced as usual with the laying down of the day-frame, which is formed of four pieces of round wood, from 40 ft. to 45 ft. in length, and of corresponding strength. The four pieces are laid at right angles to each other, so as to enclose a rectangular space of the dimensions of the shaft. Instead of being notched where they cross each other, so as to fix them securely in position, the ends of the beams are bedded carefully in clay, thus avoiding the necessity of weakening the beams by cutting. The shaft was built up to the top of the pit bank above the day-frame, in solid crib timbering, and as an extra precaution tightly lagged on the outside, the debris raised from the shaft being tipped round this portion. If the upper strata contain no water the shaft can then be sunk 10 ft. without requiring to be timbered. Here the first bearing crib is inserted on the bottom of the shaft; the sides of the shaft above this are then lined with planks, and in order to support the planks against any future side pressure an auxiliary crib is inserted midway between the day-frame and the first bearing crib; being supported from the latter by the means of four upright props placed in the corners, and is tightly held in position by means of four others, strutted against the under side of the day-frame. These props are often first inserted after the pressure of the ground has settled against the cribs, and sometimes only when the bending of the sides of the cribs indicate this pressure, since a greater stress can then be laid upon the props and the timbering generally. Both ends of these props are hollowed out to suit the curvature of the round timber of which the cribs are formed.

If the ground is not so strong the spilling is at once commenced. Supposing that one or two sets of spilling have already been completed, the following is the mode of inserting this timbering. The principal crib, which like the rest is composed uniformly of 12 in. to 14 in. round wood, is laid upon boards placed crosswise on the bottom of the shaft, since the ground is so quick that if the cribs were laid directly on the sole it would be liable to sink. These boards cover the bottom of the shaft over the whole extent, corresponding to the outside dimensions of the cribs, and correspond to the closing boards we have just previously mentioned. Behind the crib, and close against the ends of the last set of piles, four planks placed on end are laid, and kept tightly pressed against the ends of the piles by means of wedges inserted between the planks and the crib. In the space (2½ in. to 3 in) left between the plank frame or sill and the principal crib the ends of the next set of piles are inserted, beginning in one corner of the shaft and going all round. It will be necessary to take out the wedges as they are come at; they are, however, again inserted between the new set of piles and the principal crib. The piles are formed of pine planks, about 14 in. broad and 2 in. thick. The piles are kept in a diverging direction by means of an auxiliary crib inserted between the last two principal cribs, or by means of a special crib or sill, attached by means of clamps to the next upper principal crib. Oak piles have also been used, and are said to have the following advantages over piles made of pine wood:—

1. The greater strength of oak allows of piles of smaller dimensions being used, which not only are more easily inserted, but they allow of being struck more heavily.

2. Having a smoother surface they slide with less resistance over and against the piles, as well as penetrating the ground more easily.

3. They resist the damaging effect of the blows better, and in consequence of their greater hardness and stiffness less of the effect of the blow is lost.

4. And, lastly, they are less liable to rot.

When the driving down of the piles is accompanied with some difficulty, the upper ends of the piles will be enclosed by an iron ring, which is flush with the wood both on all four sides and on the top, so that the blows strike the wood and iron equally, preventing the former becoming split, or made fibrous, which lessens considerably the effect of the blow.

In the centre of the shaft the sump is formed by laying two cribs, one on the covering boards above mentioned, and the other somewhat higher in the shaft, both being about 3 ft. square. On the outside of these cribs piles of from 4 ft. to 5 ft. long are driven down into the ground. Of course, an opening is purposely left in the boards forming the cover of the bottom of the shaft for the insertion of these piles. By means of a pointed bar straw is pushed beneath the ends of the piles, and into all openings between the piles. After the piles have been driven far enough a layer of straw is thrown on the bottom of the sump, upon which boards are placed, covering the bottom. After this the driving forward of the shaft piles again commences, under the same precautions of inserting twisted bundles of straw into all the openings through which the quick ground can penetrate. When in this manner the piles have been driven from 3 ft. 6 in. to 4 ft. in advance the sinking of the shaft is recommenced by taking up one of the cross planks next to one of the shorter sides, and removing the ground beneath. When this has been done the board is replaced as quickly as possible, and strutted down by means of short props inserted between the ends and the next upper lying crib. In like manner the next plank is raised, the ground beneath removed, and the plank replaced in position, and so on over the whole of the bottom, which will have been by these means lowered a few inches. In very difficult strata, where there is great liability of the piles being forced inwards, a temporary crib of somewhat weaker wood is inserted as soon as the shaft bottom has been sunk 30 in., or even 24 in., below the last crib. This crib is suspended from the last by means of eight iron clamps. Since in consequence of the divergence of the piles an open space would be left in the corners if the piles were driven straight down, care must be taken to make these openings good as soon as any leakage shows itself. This is accomplished by driving an iron clamp into the principal crib, to be used as a fulcrum, and by means of the pointed bar as a lever the piles are successively pressed against the corners, so as to close the corners and make the planks close tight against each other. The opening which is thus made in the middle of the side is stopped with bundles of twisted straw, until the opening has become so great as to admit of another pile, the breadth of which may be made to suit. The straw is in all cases stopped into the openings until the water which penetrates through into the shaft runs clear. The driving forward of the sump and the shaft piles, and the sinking of the shaft bottom, proceed in the manner above described, until the bottom of the shaft has been lowered from 3 ft. 6 in. to 5 ft. below the last principal crib, when the next principal crib is inserted. Since in order to accomplish this the whole of the props holding down the closing boards must be removed, and which can only be effected gradually; this portion of the operations is the one attended with the greatest difficulties. When the principal crib has been properly inserted it is strutted against the next upper principal crib, by means of four props placed in the corners, which are afterwards removed for the insertion of the auxiliary or intermediate crib. As before, any openings must immediately be carefully stopped up with straw, and larger openings by the driving in of new piles.

Is the new principal crib carefully laid in position, the completion of the last field but one is effected. The heads of the last set of piles are either driven down or sawn off, so as to come into the same horizontal plane with the principal crib, and where it may appear necessary the piles are wedged tight against the sill. On the upper side of the bars forming the crib, and resting also on the heads of the piles, four boards or planks are laid, the outside edges of which fit close against the inner side of the next set of piles above. On the top of these boards the props strutted against the intermediate crib are placed, props on the upper side of the intermediate crib being strutted against the under side of the next upper lying principal crib. The whole is completed by the insertion of the cross bearers (of the cribs) separating the winding and travelling divisions of the shaft. The shorter sides of the shaft are strengthened with wall plates and struts, the former being suspended from the day-frame on the next upper lying principal crib.

In this manner the sinking and spilling of the shaft is continued until the quick ground has been passed through, and a firm clayey bed has been reached. This (and, in fact, every firm bed so met with in passing through the "Kurzawka," is so used) is at once made use of as a suitable place for the insertion of principal bearing stempels. The timbering is once more overhauled, and where necessary corrected, after which the above-mentioned temporary wall-plates are removed, and replaced by a much stronger set of side timbering.

The two bearing stempels are fixed across the shaft next to two shorter sides, and at right angles to them (*i.e.*, lengthwise with the shaft) the longer bearers or bars; on these two the bearing crib is placed. The wall-plates, generally from 36 ft. to 40 ft. in length, are next footed on the shorter sides of the bearing crib, the upper end being cut at such a length as to bear against the underside of one of the principal cribs, on the upper side of which the next set of wall plates are footed. In this manner the wall-plates are fastened securely and connected with each other. At the upper and at the lower ends the wall-plates are held apart by means of horizontal struts placed close against the cribs, and the space between receives struts inclined first in one direction and then in the other. Where the pressure is but slight the inclined struts are omitted, and the wall-plates are held apart by means of horizontal struts placed from 36 in. to 40 in. apart.

When the timbering has been completed in the manner above described, which is executed generally 16 in. wider and longer than the outside dimensions of the permanent timbering, the latter is built up from the solid ground. The permanent timbering consists of cribs laid solidly upon each other (solid crib timbering), the temporary timbering above described being removed as the solid timbering is being built up. The space behind the solid crib timbering is at once backed by well puddled and stamped clay, in order to hold back the water.

* Being Notes on a Course of Lectures on Mining, delivered by Herr Bergrath Dr. VON GRODDECK, Director of the Royal Bergakademie, Clausthal, The Harz, North Germany.

IRON AND STEEL AT THE PARIS EXHIBITION.

It seems to be not a little remarkable that Spain, with all her extraordinary mineral resources, upon which England and other countries are now very largely dependent, should occupy the unenviable distinction of being, next to Italy and Turkey, the most backward among European nations in the science and practice of metallurgy. Nor is our wonder diminished when we remember that in the year 80 of the Christian era, iron mines, alluded to by Pliny, were worked in the province of Biscay, which continues to this day one of the chief centres of the Spanish iron trade. But the display made at the Paris Exhibition by Don Ybarra, of Barracaldo, by Duro y Compania Langres la Felguera, in the Asturias, by the Fabrica de Quiros, and by the Fabrica Nacional de Trubia, in the province of Oviedo, demonstrate that the iron trade has been less dead than asleep in the Peninsula, and that the judicious fostering of a few energetic and determined capitalists could hardly fail to create an expansion of "pith and moment." The most notable of the collections we have named is, undoubtedly, that of La Felguera, which includes specimens of rod, sheet, rail, tee, and plate iron, together with a few samples of puddled steel, all of a quality that will bear narrow inspection. The works of La Felguera, situated in the valley of Langres, were erected only in 1860, and cover some 47,300 square metres, while the number of hands employed is nearly 2000. They comprise 3 blast, and 24 puddling furnaces, 3 steam-hammers, 2 forge trains, 10 re-heating furnaces, and 30 steam-boilers, with all other accessories in the form of rolling mills, &c. The company also carries on, at Vega, a cokemaking establishment with ovens on the Belgian system, and machinery for washing the coal. The works as a whole are equal to a production of 20,700 tons of pig and 14,000 tons of rolled iron, including 5000 tons of rails. It will thus be seen that they are quite up to modern requirements, if they are not somewhat in advance of works nearer home. Don Ybarra has an almost equally comprehensive display from his works at Barracaldo, where he has three blast-furnaces producing pig-iron, partly with charcoal and partly with English coke, and forges and rolling mills yielding, among other specialities, sponge iron by the Chenot process, of which some remarkable samples are shown.

From the now famous district of Bilboa Don H. Y. C. Ybarra brings a lot of ores, and Juan J. de Jauragui, of Zorroza, specimens af iron and cement steel. The ores of Bilboa, including those of Sommorostro, Galeria, Campanil, and Rubio, are now largely used in other countries for the manufacture of Bessemer steel, not fewer than 12 firms in England, 18 in France, and 3 in Belgium employing them for that purpose. Of the total output of ore from the mines of Bilboa, Spain herself only consumes 28 per cent., while England uses 40 per cent., France 25 per cent., and Belgium 7 per cent. The high degrea of suitability for steel-making possessed by the ores of Bilboa has led to the rapid growth of a very extensive trade in their exportation. In 1860 only 180,131 tons of ore were raised in the whole of Spain; in 1868, 385,000 tons; and in 1870, 436,000 tons. In 1873, however, nearly 1,500,000 tons were raised, of which Great Britain alone imported 790,000 tons. Concurrently with this immense development, Spain has only advanced her native manufacture of pig-iron from 39,000 to 60,000 tons, and of wrought-iron from 32,000 to 40,000 tons. The Bilboa ores, which are chiefly hydrous red, brown, and yellow hematite, did not begin to attract much attention till 1870, and in the following year concessions for the making of 11 branch railroads were granted by the Spanish Government for the transport of the ores from the mines to the shipping places. About the same time attention began to be directed to the working of the rich magnetic iron ores about midway between Malaga and Gibraltar, and in 1872 a company was formed in England for the purpose of working the deposits called respectively La Colosal and El Auxiliar, in the valley of La Palmitera, about 16 miles from the Mediterranean coast. A third field, near Irun, in the province of Guipuzoca, was opened out in the same year by another English company, which has found a ready sale for the hydrous hematites and spathic carbonates worked in their mines of San Miguel. In no other district, however, has the same expansion taken place as in that of Bilboa. This expansion has been mainly due to English capital and enterprise, which were freely bestowed upon it during 1872 and 1873. Hence we find from La Mineria that while the number of concessions of iron mines in force in Spain in 1870 was 582, it had increased to 615 on the last day of the same year, and since then has continued steadily to increase, although the mineral statistics of the country are so far behind hand that we are unable to specify the exact number at the present time. The iron field around Bilboa is so extensive that there is practically no limit to its capacity for development; and, situated as it is, on the northern seaboard of Spain, it is probable that England will continue to draw therefrom larger supplies year by year, unless, indeed, it should happen that some new fields of suitable ores shall be found at home, or the coarse and silicious ores of Cleveland and other districts can be adapted for the steel trade. For Spain herself, however, there seems but little promise of taking any higher rank in the metallurgy of iron. Her people have not the energy nor the capital, and her fuel has not the suitability for engaging largely in this industry, while those who have both the energy and the capital are scarcely likely to risk more than they can help in a country which has heretofore been so singularly turbulent and unstable.

Thanks to the splendid organisation which it enjoys, and the scientific and practical eminence of those who are at its head, the iron trade of Sweden seldoms fails to come well to the front in international competition, and the Paris Exposition of 1878 has proved no exception to this invariable rule. In class 43 Sweden has no less than 26 exhibitors, who collectively make a show scarcely inferior to that of any country other than France. The special catalogue prepared for the Swedish exhibits by H. J. Petersens, Secretary of the Commission, is a model of its kind, and contains every fact that the most curious can desire to know concerning the exhibits and exhibitors, detailing as it does with the utmost precision not only the exact character of the articles shown, but the position occupied by the exhibitors in reference to resources, production, value, number of hands employed, geographical situation, and so forth. If any should, however, desire still more complete information they may consult with advantage the remarkably full and painstaking work of Prof. Richard Akerman on "L'Etat actuel de l'Industrie du Fer en Suede," which has also been prepared for exhibition purposes. As usual, the exhibits of the Swedish firms are generally of a superior order of merit, and embrace almost every variety of high-grade iron and steel; but they are not so special nor so novel as to call for any lengthened comment. The principal exhibitors are the Motala Company, the largest in Sweden and the most affluent; the Kihlafors Bruk, Degenfors Aktiebolag, Ferna Bruk, and Nissafors Iernbruk. From Prof. Akerman's carefully compiled statistics we find that the quantity of iron ore raised in Sweden advanced from 417,337 metrical tons in 1860 to 926,824 tons in 1874, when the maximum yield was attained. During the last three years the output of ore has fallen off. It is, however, otherwise with pig-iron, of which 185,000 tons were produced in 1860, 300,470 tons in 1870, 343,872 tons in 1873, and 352,622 tons in 1876. Of bar and other wrought iron Sweden has advanced her production from 136,920 tons in 1860 to 212,516 tons in 1876; while of Bessemer steel she made in the latter year 21,002 tons, as compared with only 4424 tons in the former. On the whole, therefore, and in spite of many natural drawbacks, the iron industry of Sweden has been progressive, although not, of course, to anything like the same extent as that of England or the United States.

Although probably more is generally known concerning the iron trade of Belgium than that of any other continental country, owing to the frequently repeated cry of Belgian competition, yet for that very reason her contributions to the Exhibition of 1878 claims prominent notice; and no honest English ironmaster will hesitate to acknowledge that our own country has nothing better to show than the collections of Seraing, Angleur, Ongrée, and Esperance, embracing as they do such a wide variety and such a uniformly excellent grade of products as to make the successful competition of the producers readily intelligible to those who had, perhaps, failed otherwise to comprehend it. The wonderfully ample and complete resources of the Cockerill Company are prominent in everything they show, from the lightest merchant iron to the heaviest machinery, and those who wish to find out how much a Belgian establishment can do without external aid may study with profit the special catalogue which this company has prepared for the Exhibition. There is nothing better of its kind in the Exhibition than the sheet-iron shown by the Esperance Company, and in ordinary wrought-iron and steel it would be difficult to bring together anything better than the Cockerill and Ougrée firms have to show. Of these exhibits, and of the circumstances under which they were produced, the catalogues issued by the Société Cockerill and by the Belgian Commission furnish all requisite details. All that it now behoves us to notice in a general way is the fact that, notwithstanding natural resources of a comparatively limited if not actually mean order, Belgium continues not only to maintain but to improve its relative position among the industrial nations of Europe. Belgium imported in 1877 not less than 783,000 tons of iron ore and 181,300 tons of foreign pig-iron, and yet she exported in the same period upwards of 112,000 tons of merchant iron, manufactured largely from crude iron imported from the very countries to which the great bulk of her merchant iron was sold. In other words, Belgium imported from Great Britain last year 81,300 tons of pig-iron, and sent her in return 52,661 tons of merchant iron, chiefly in the form of beams, angles, and girders. The most obvious consideration hence arising must be that if England can produce pig-iron cheaper or better than the Belgians, she ought also to produce finished iron of such a quality and at such a price as to be independent of Belgian supplies.

The truth is that Belgium has wrested many orders from England in open competition because of her cheaper labour and because of her greater attention to small economies; though Belgium cannot now, and never could, do anything that English manufacturers ought not, with a very little effort, to rival. But the painstaking and practical efforts of the Belgians have recently enabled them, with inferior resources, to make progress where England has fallen off, and in proof of this we need only point to the fact that in 1877 Belgium exported 112,000 tons of bar and rolled iron, as compared with only 96,000 tons in 1875. After all, however, the iron trade of Belgium is a small matter as compared with that of England, for the total production of pig-iron is less than a sixth and the production of steel less than a seventh of that of Great Britain. The Belgians have all along excelled in their merchant iron, and they have never failed to keep themselves well in the front in the adoption of the most approved mechanical appliances for this purpose. In the literature of metallurgy, moreover, the Belgians have taught the rest of the world for years past, while their system of technical education has been more advanced and more thorough than anything that the School of Mines in Jermyn-street or South Kensington has to offer at the same price. Reading thus between the lines, we are enabled to understand how it is that the smallest kingdom in Europe is at the same time the most prosperous; and how, in addition to maintaining a larger population relative to area than any other country, Belgium is at the same time able to prove, as she does at the Paris Exhibition, that she is a formidable industrial rival of countries with more ample natural endowments.

Neither America nor Canada come forward with sufficient prominence to claim any special notice of their mining and metallurgical products at the Paris Exhibition. With the exception, indeed, of some samples illustrative of the Dupuy process, made at the Union Ironworks, Pittsburg, from Republic ores, the United States have done nothing to substantiate their claims to rival Great Britain in the metallurgical arts. Their exhibits otherwise are limited to a few castings—very good in their way—from Lehigh iron; a collection of bolts, nuts, &c., made from American iron, costing 2 cents. per pound, illustrative of cold punching, by a Phi-Philadelphian firm; a case of files made from Pittsburg and New Jersey, exhibited by another enterprising firm from the State of Philadelphia; and 800 styles of cutlery shown by one of the principal companies engaged in the trade, which ought to prove an interesting study for their Sheffield rivals. Nowhere within recent years has greater progress been made than in America in all that relates to the manufacture of iron and steel; but as this progress was so recently illustrated at Philadelphia, it is probable the Americans did not deem it desirable within such a short interval to show to the rest of the world their enormous resources and the extent to which they had been utilised.

It seems scarcely possible that in the time to come international exhibitions will continue to show the same vast strides and changes that recent exhibitions have brought to light in the development of the great staple industries of the world. Even in the oldest countries there must of necessity henceforth as heretofore be variations of prosperity, and transitions from one stage of progress to another. But it is more than probable that when next we come to deal with the march of events in this regard our attention will be

directed less to the countries now passed under review than to the remoter and less changeful empires that have elected at last to develope resources long neglected and little valued, but yet of remarkable promise. The Australias, India, Japan, and even China must within the next few years make history in this direction, seeing that the impetus has already been given, and the initiative established, and upon the extent to which these countries learn to rely upon themselves must depend very largely the place then taken by the nations now contending for industrial supremacy.—*The Times.*

THE DESIGN AND USE OF BOILERS.

An interesting paper on this subject was read at the recent meeting of the British Association by Mr. FRED. J. ROWAN, M.I.C.E., in which he states that it has been no doubt owing to a disregard of accurate scientific methods of practice that so little advance has been made in the planning and use of improved forms of boilers. Engines have been gradually improved for some years in conformity with the laws of thermodynamics ascertained by distinguished investigators, but the boiler has been to a great extent neglected, so that while we have engines capable of using steam of high pressure in the most efficient and economical way, we are, as far as general practice informs us, without a boiler which will supply such engines with steam of the best pressure generated in the best way. The prevailing idea in making boilers hitherto seems to have been to provide merely a receptacle, capable of containing a quantity of water in one space, and a quantity of steam in another. The best form for manufacturing purposes seems to have been the point of attainment first aimed at, and the best form for strength to have been an after consideration, the history of boiler making demonstrating how gradually general practice became affected even by that consideration, while recent discussion shows the present unsatisfactory state of things as regards it.

The proper generation of steam and circulation of the heated water and gases, with other points of importance, are now, however, attracting more generally the attention which they demand, and there is hope that ere long boilers will be valued in proportion as their designs exhibit a due regard for those principles of scientific truth which regulate the forces called into action in their working. It is obviously necessary, first of all, to decide upon the pressure of steam which it is most advantageous to use. In arriving at this decision the principles of thermodynamics are, of course, indispensable, but as such an investigation is in itself a large subject, we cannot here do more than indicate the economy in utilisation of heat which is connected with the production of steam of high pressure, and the advantage which arises from its use. The best pressures of steam, which appear to be from 150 to 250 or 300 lbs. per square inch, having been deduced from accurate application of thermodynamic principles, it is evident that the suitability of a boiler depends upon its possessing certain characteristics—the most economical and efficient means of generating steam of that pressure; strength sufficient to carry it with safety under the exigencies of practical working, and facility of construction and repair. Durabilty depends upon correct design and careful working, so that it is involved in these other features.

Referring to combustion, Mr. Rowan mentions that 1 lb. of carbon in burning to carbonic acid evolves heat sufficient to raise 14,500 lbs. of water through 1° Fahr., and this represents $14,500 \times 774 = 11,223,000$ ft. units, or units of potential energy—or, roughly speaking, 1-horse power exerted during 5½ hours. Still, it does not follow that all this energy is available for mechanical work, because the amount of work which can be obtained from a given amount of heat depends upon the intensity as well as the amount of the heat, and thus 1 lb. of water, containing 14,500 heat units, is in a more favourable condition for giving out mechanical work than 14,500 lbs. of water containing the same amount of heat. The difference, however, between the amount of work which it is theoretically possible to obtain, and that which has actually been utilised as yet from 1 lb. of carbon, is sufficiently great to leave very large room for improvement in practice. From a series of carefully made experiments, Mr. Rowan finds that there is a decided increase of efficiency with the use of fan blast, but it is impossible to realise the full benefits of the system of forced combustion unless the blast is combined with arrangements for regular feeding of the coal in a nearly uniform state of division, and for governing the speed of the escape of the hot gases. Hence from known results, as well as theoretical reasons, it follows that a system of forced combustion, properly applied, and combined with suitable mechanical feeding of the fuel, satisfies all the requirements of intimate admixture of air and fuel, regular and proportionate supply of both; and, moreover, provides means by which alone the supply of quantities and the force of draught are under perfect control. The full benefits resulting from complete combustion and simplicity of arrangement, and these are not few, may thus be realised, and there are also many collateral advantages to be derived from this system of combustion in boilers, such as saving in labour, space, and so on.

After complete combustion nothing in connection with the generation of steam is of more importance than the proper circulation of the heated gases. Since the transmission of heat is proportional to the area of heating surface, and the time of contact of the heating medium therewith, it follows that not only must sufficient heating surface be provided for the heat which we produce by combustion, but also a sufficient time must be allowed for the hot gases to remain in contact with that surface. Generally speaking, however, it is impossible to regulate this in boilers, because the velocity of the hot gases is beyond the control of the engineer, being determined by the amount of the chimney draught, the gases being allowed to escape directly to the funnel with a constantly ascending movement. Dealing with the hot gases in this crude way—for by it the hotter the gases the more rapid the ascent, and, therefore, the shorter the time of contact allowed between them and the surface—has led engineers to make arbitrary estimations of the values of different kinds of heating surface. The simple device of turning the currents of gases downwards before they are allowed to make their final ascent to the funnel introduces a thoroughly different set of conditions, involving a reduced rate of travel of the gases over the heating surface, and the necessary escape to the funnel of the colder portions of the gases first, these having a higher specific gravity than the hotter portions, and thus also the absence of excessive temperature in the funnel. When to this is added the forcing in of the products of combustion, as in the system of combustion illustrated, it is plain that we are able to retain the hot gases under pressure at will until they transmit all their heat to the plates or surfaces of the boiler; and in this way we render all kinds of surface, whether vertical, horizontal, or diagonal, which are exposed to these gases, of equal value for the reception of heat.

As to the question of heating surface, Mr. Rowan considers that the whole matter is really comprehended in that of the diffusion of heat by conduction, which introduces the elements of the thermal conductivity, or conducting power of the metal, and the removal of the heat from its inner surface by sufficient circulation of the water. At present the state of general acquaintance with the subject is unsatisfactory, and we consequently find that what has many uncertain elements is dealt with as if there were none. Thus it is that the power of a boiler is often estimated simply by the gross superficial area of heating surface, or surface exposed to the furnace flame or gases, irrespective of the different values of various parts of that surface depending upon their position; the time during which they are exposed to a part of the furnace gases; the temperature to which they are exposed resulting from the degree of completeness of combustion and the ingress of air; and lastly, the efficiency of the circulation. If we have secured the proper temperature due to complete combustion and the thorough exposure of the surface to that temperature for the necessary time, the point of vital importance to secure is that the water and steam should have free access to, and unchecked escape from, the surfaces with which they are concerned.

No point seems, Mr. Rowan thinks, to have been more completely underrated in general boiler practice, although none demands for successful working more careful attention than this one. It results directly from the laws of the diffusion of heat by conduction, just referred to, that, providing the heat is properly brought into contact with the heating surface, the vital condition for the successful utilisation of that heat in the boiler is that there must be presented continuously to the plate that which has a lower temperature than the hot gases, and is able to carry away the heat conducted to it. The water is this medium, and not only is it superior to steam on account of its great specific heat, or capacity for heat, but it is so much superior that, as long as water has free access to a plate or surface of iron, it is impossible that the metal can be overheated, even although a very high temperature be applied to it. This is not the case where steam is in contact with the plates or tubes, and hence the serious fallacy of what has been called "vapour circulation," or making steam by "foaming" in boilers. Not only is the heat obtained from the fuel not effectually conducted where steam is in contact with the metal, but also deterioration and destruction of the boiler must eventually result. After mentioning the evils of having a considerable amount of heating surface in tubes above furnaces and flues, and directly in the path of the ascending steam from these, he remarks that in principle the same mistake is committed in every boiler which has not a separate channel, clear of the action of the hot gas or flame, provided for nothing but the return downwards of the water, which is invariably carried upwards by the steam in boiling. It is certainly wrong, he says, to expect steam to escape freely by the same openings through which, or by the same passages along which, water is struggling back to the place which its specific gravity demands for it. And thus we are led to see that the steam should have an unhindered vertical ascent, and that from receptacles above, to which it is carried by the steam, the water should be returned directly to receptacles at the lowest part of the boiler by separate pipes or passages at a lower temperature than those in which steam is generated, and thence allowed to flow upwards to replace the water carried off by ebullition. This is the *rationale* of the working of a correctly designed boiler, and it proves that a vertical water tube form is the only one which satisfies indispensable conditions, while it argues inherent defects in the designs of all boilers having horizontal or nearly horizontal generating tubes.

Having fully discussed the form of the boiler, Mr. Rowan next considers its strength, and remarks that this depends upon the best form for resisting pressure and equal distribution of the strains due to expansion. To resist high pressure it is necessary to have diminished areas, because as internal fluid pressure acts equally on every inch of surface, although a true circular is the strongest form, with large diameters, we soon reach the practical limit of strength, even when plates of considerable thickness are used as at present in ordinary tubular boilers. The design of ordinary cylindrical marine boilers is defective also in respect of the large amount of external surface which is exposed more or less, even where covered by lagging, and which admits of loss of heat by radiation, besides adding something to the differences of temperatures of various parts of these boilers. This leads to the next point—expansion. The even distribution of the heat by proper circulation and design is a matter which affects the strength and wear of boilers more directly than appears on the surface of the subject, for the force called into play by the expansion due to elevation of temperature is no trifle, and if its action is confined to one portion of the boiler and (even in part) excluded from another, severe strains may result in rendering the boiler unfit for service. This is what frequently happens, and, in fact, superintending engineers know well that to raise steam rapidly in boilers of the ordinary marine type means in most instances to produce transverse cracks and leaking joints, generally of serious nature, over the bottoms of the boilers, so that it is a standing rule that some hours, usually six or seven, must be spent in the operation of getting up steam in order to ensure as far as possible the thorough heating of all the water, and so of the various parts of the boiler.

TRIAL OF A NEW PATENT SAFETY APPARATUS FOR PIT CAGES.

This arrangement, which is the invention of Mr. F. LEONARDT, of Birmingham, answers a double purpose, as it not only prevents overwinding, as do several other excellent detaching hooks, but it arrests and safely holds the cage in accidents caused by breakage of ropes, and we think this is not accomplished very satisfactorily by any other apparatus. In March last Mr. Leonardt read a paper upon his invention before the members of the South Staffordshire and East Worcestershire Institute of Mining Engineers, and also exhibited a model which was favourably criticised, but it was suggested that a practical test should be made at some of the neighbouring mines in order to fairly judge of the efficacy of the apparatus. Following up this suggestion, Mr. Thos. Johnson, of Dudley, who is agent for Mr. Leonardt in this matter, obtained from Mr. Fisher Smith, the Earl of Dudley's chief agent, permission to put the arrangement on a cage and test it at the No. 30 pits, Saltwell Colliery. Mr. Fisher Smith is a gentleman who is ever ready to afford every reasonable facility to inventors who can show him that they have any really good thing that has for its object the advancement of science, or the saving of life and property, and he, with Mr. Scott, the Government Inspector, and several others of the Earl of Dudley's leading officials, privately inspected and tested the apparatus on August 12, and the results were so satisfactory that permission was given for a public trial on Tuesday last. The members of the Mining Institute and others interested were consequently invited, and about 70 or 80 met at the pit, including several of the leading mining engineers of the district. The safety apparatus was first inspected, and consists first of a detaching hook composed of two wedged-shaped plates, each fitted with eyes, to which the shackle of the rope and the ring of the cage chains are attached by means of dee links.

In working position the two wedges are placed together in opposite directions, forming a rectangular-shaped exterior, over which a strong collar is slipped, and held in place by a copper or metal pin passing through it and the wedges. When the weight of the cage is brought upon the "hook" the tendency is for the wedges to part, but they are perfectly locked by the collar, and the greater the weight the tighter the lock, and the only relief can be when in case of overwinding the collar comes in contact with the cross-head on the pit-frame, and is slipped down off the wedges, shearing the pin, and permitting the rope to go over the pulley and cage to the bottom of the pit if it were not for the arresting apparatus attached to the cage. The latter apparatus consists of two eccentric levers or cams fitted into a sort of collar, which works on the wire guide-ropes. The peripheries of the cams are grooved to fit the guide-ropes, and press them against the collar, working round them in action. Attached to the back of each cam is a rod surrounded by a spiral spring, and this is kept in tension in working, at the same time holding back the cams from the guide-ropes by means of chains running round small pulleys up to the cage chains. When the rope is detached in overwinding or breaks the chains are immediately relieved, and the springs force the cams forward, causing them to press the guide-ropes against the collars; the friction also acts upon the eccentric form of the cams, and the greater the weight the more force they exert upon the guides, so that the cage is firmly held.

In the first trial on Tuesday the collar was knocked off the detaching hook by a sledge hammer, and when the rope was released the cage was arrested in a few inches by the apparatus. For a second trial about 22 cwts. of castings were put upon the cage, and the process of knocking off the collar was again repeated, when the cage with its load was arrested in 3¼ in.

In two further trials the efficacy of the arrangements in case of overwinding was shown, and each time when the engine wound the cage up to the pulley both the hook and the arresting gear acted admirably. On the last occasion when the cage came up from the pit bottom it appeared to have three men on board, and a sigh of relief, followed by great laughter and cheers, was given when the cage was caught, and the occupants proved to be dummies stuffed with straw. The whole apparatus is applicable to wood as well as wire guides; and although the alteration of a few details, suggested by experience, may improve it, the principle seems correct, and the whole thing has the elements of success about it.

Many of the leading gentlemen present expressed themselves satisfied with the results; and after votes of thanks to Mr. Fisher Smith, Mr. Leonardt, Mr. J. Skidmore, the manager of the colliery and others, the party broke up.

AMBULANCE ASSOCIATIONS, AND COLLIERY ACCIDENTS.

We are glad to find that the St. John's Ambulance Association, whose object is the immediate relief of persons injured by accident on the spot where such take place, has done good work in the South of England in establishing centres where its principles can be carried out, has now turned its attention to the colliery districts. More than almost any other are colliery localities the frequent scenes of serious accidents, where, indeed, they may be said to be of daily occurrence. Many of the accidents that take place, and which turn out fatal, would not have so resulted had the proper remedies been applied immediately the injured person was found. But, unfortunately, too often do we find some poor fellow suffering from broken limbs or internal injuries being jolted along from a pit to some distant colliery village in a cart without springs, lying in a bed of rough straw, or on the clothes of some of his fellow-workmen, every motion of the cart producing fresh agonies to the sufferer. Many collieries are in remote districts, and in all probability it may be two or three hours after an accident has taken place before the injured one receives medical aid, all that time writhing in inconceivable agony. It is only about a fortnight ago that whilst in Yorkshire we saw a poor fellow being taken to the Barnsley Hospital from the Dodworth Silkstone Colliery, a distance of rather better than two miles, having had his legs broken. He was carefully taken in a cart in which there was a spring cot, but the blood of the poor fellow could be traced from where the accident took place to the door of the hospital. The man died; no doubt from exhaustion owing to the loss of blood. Had any person at the colliery been able to bandage the injured limb or limbs, the probability is that the man would have recovered. It is for the imparting of such surgical knowledge as would meet similar cases as that we have described that the Ambulance Association is now engaged in educating persons connected with our collieries. The good work initiated we need scarcely say will meet with the warm approval and generous support of the colliery owners throughout the kingdom, for we know that they have ever been desirous of finding some means for alleviating the sufferings of those who from various causes, many of them inevitable from the peculiar nature of mining, have been injured whilst following their ordinary labours. In the Midland coal field, the largest in England, running from Nottingham to Leeds, from the fiery nature of the seams, as well as from the soft character of the roof of some of the mines, accidents of a serious nature from explosions and falls are of not unfrequent occurrence, so that when a man is injured he has often to be conveyed three or four miles, if not more, before he can receive medical attention, and at times, no doubt, that aid comes too late to save the life of the sufferer. We are, therefore, glad to find that this state of things will at least be partially remedied, for the Ambulance Association have established four centres in Derbyshire—one each at Clay Cross, Tibshelf, Chesterfield, and Alfreton, places in the vicinity of which are some of the largest collieries in the county. A number of men are now being taught how to treat different accidents, so that injuries can be carefully attended to and suffering alleviated on the spot, so far as surgical knowledge can effect so much, when the sufferer can be either sent to his home or to a hospital on stretchers scientifically devised to prevent jolting or unnecessary pain, and adapted for fitting into cart or carriage. In the West Riding it is expected that similar centres will be established in connection with the colliery districts, seeing that at Sheffield a local committee has been formed of which Earl Wharncliffe, a large colliery owner, is the chairman. Of the general success of this movement there can be no question, and we certainly wish the St. John's Ambulance Association hearty God-speed in their truly christian and philanthropic work.

TRIAL OF ROCK-DRILLING MACHINES AT DALKARLSBERG MINES.*

In 1874 a committee was appointed by the Jernkontor (Swedish Ironmaster's Association) to investigate the comparative cost of hand and machine-boring. The present number gives a short account of the work done in 1877 at the Dalkarlsberg Mines. Three machines were used, one of Schram's, one of Raud's, and one of the Ingersoll pattern; and the trials extended from June to October inclusive, when the coldness of the weather and temporary nature of the air-compressing arrangements necessitated a stoppage. The results, which are given in a table, show that the average cost of hand-drilling per lineal foot of excavation was 7 per cent. less than that of machine-drilling, but the committee point out that the cost of the latter mode of working would have been less had more machines been employed, as the number of attendants would not have increased in the same ratio as the number of machines; moreover it appears that the cost of the machine work gradually diminished, and, indeed, in the month of September was less than that of hand labour. In point of speed the machines have the advantage, each being considered equivalent to eleven miners. The work was done at depths varying from 430 ft. to 700 ft. and the rocks encountered were eurite, or felspathic granite, chlorite, and mica schist.

— By M. L.: Jernkontorets Annaler, 1878.

* From JAMES FORREST'S "Abstracts of Papers in Foreign Transactions and Periodicals," for the Proceedings of the Institution of Civil Engineers.

IMPROVEMENTS IN FURNACES.

Important advantages, with great economy and simplicity as compared with the arrangements hitherto employed (a great saving being at the same time effected in the amount of fuel consumed), are claimed by Mr. T. W. WILLIAMS, of Swansea, to result from the use of his improved furnace, the grate of which is constructed with hollow perforated fire-bars, which are by preference of a slightly tapered form, the diameter of the outer ends, which are respectively formed with bell-shaped mouths, being greater than that of the inner ends. A tube is connected with the steam space or other convenient part of the boiler, from which steam can be obtained in such a manner as to allow of its being brought down to the front of the same a little below the bell-shaped mouths of the fire-bars, and to be carried horizontally in front of the latter. The horizontal portion of the said tube is provided with apertures corresponding in number to that of the fire-bars, and into which apertures are fixed small tubes, the opposite ends thereof being provided with nozzles; these tubes are fixed vertically, or nearly so, until they are opposite the centres of the fire-bars when they are bent at right angles, in such a manner that the nozzles pass through the centres af the bell-shaped mouths to the required distance.

When it is required to bring these arrangements into operation steam is admitted into the first mentioned tube, the supply thereof being regulated by means of valves adapted for the purpose. The steam then issues through the smaller tubes and nozzles into the bell-shaped mouths of the fire-bars with such force as to create a partial vacuum, the external atmospheric air passing into the same through the said bell-shaped mouths, and, together with the steam through the perforations in the fire-bars, into and amongst the superincumbent mass of incandescent fuel, the result being that the perfect combustion of the fuel is greatly facilitated, and the bars, being kept cool, are preserved from the injurious effects of the great heat generated. Instead of providing one tube or nozzle only for each fire-bar, two or more of different lengths may be employed, the same being connected with the horizontal tube in a manner similar to that before described, such additional tubes or nozzles may be advantageously employed when the fire-bars are of unusual length. Instead of having the tubes or nozzles entirely separate from the fire-bars, the same may be cast in one piece therewith.

In cases in which the invention is applied to locomotive engines both ends of the fire-bars may be open, and respectively provided with the apparatus before described, and when the same is in operation at one end of the fire-bars the other end of the latter may be

closed by means of shutters. By these means the engine may be worked in either direction. Results of a very important nature are it is claimed, secured by means of this invention. The fire-bars are kept constantly cool, even when anthracite coal is employed, the combustion of the same being completely effected by the operation of the apparatus described. By reason of the bars being kept cool "clinkering" is entirely avoided. The operation of the apparatus is almost noiseless, and by reason of a perfect combustion of the fuel being obtained, coal of inferior qualities may be used. The apparatus may be employed in combination with boilers constructed with or without combustion chambers.

WATSON BROTHERS' MINING CIRCULAR.

Ten years ago the weekly information which had previously been published for a great number of years in WATSON BROTHERS' Mining Circular was transferred to the columns of the *Mining Journal*, with the following announcement; which is now reproduced in consequence of the numerous letters and enquiries handed to them of late in reply to one which appeared in the Journal on the Clementina Mine.

In the year 1843, when mining was almost unknown to the general public attention was first called to its advantages, when properly conducted, in the "Compendium of British Mining," commenced in 1837, and published in 1843, by Mr. WATSON, F.G.S., author of "Gleanings among Mines and Miners," "Records of Ancient Mining," "Cornish Notes" (first series, 1862), "Cornish Notes" (second series, 1863), "The Progress of Mining," with Statistics of the Mining Interest, annually for 21 years, &c., &c. In the Compendium, published in 1843, Mr. WATSON was the first to recommend the system of a "division of small risks in several mines, ensuring the success in the aggregate," and Messrs. WATSON BROTHERS have always a selected list on hand. Perhaps at no former period in the annals of mining has there been more peculiar need of honest and experienced advice in regard to mines and sharedealing than there is at present; and from the lengthened experience of Messrs. WATSON BROTHERS they are emboldened to offer, thus publicly, their best services and advice to all connected with mines and mining.

Messrs. WATSON BROTHERS are daily asked their opinion of particular mines, as well as to *recommend* mines to invest or speculate in, and they give their advice and recommend mines to the best of their judgment and ability, founded on the best practical advice they can obtain from the mining districts, but they will not be held responsible, nor subject to blame, if results do not always equal the expectations they may have held out in a property so fluctuating as mining.

WATSON BROTHERS,
MINEOWNERS, STOCK AND SHARE DEALERS, &c.
1, ST. MICHAEL'S ALLEY, CORNHILL, LONDON.

The great extension of mining business, the difficulty so often complained of by country shareholders in getting accurate and disinterested information as to the state of Cornish and Foreign Mines, and of the financial and real position of mining companies generally, have induced Messrs. WATSON BROTHERS to make their Circular now published in the *Mining Journal* more extensively known, and to state—

That they issue daily to clients and others who apply for it a Price List (as supplied to most of the London and country papers), giving the closing prices of Mining Shares up to Four o'clock.

They also buy and sell shares for immediate cash or for the usual fornightly settlement in all Mines dealt in on the Mining and Stock Exchanges, at the close market prices of the day, free of all charges for commission. They deal also, on the same terms, in the Public Funds, Railways, Telegraphs, and all other Securities dealt in upon the Stock Exchange.

Having agents in all the mining districts, they are constantly getting mines inspected for their own guidance, and will also obtain special reports of any particular mine for their clients, for the inspecting agent's fee of £2 2s.

PITANGUI (Gold) formed part of the property of the old Anglo-Brazilian Company, and down to the water level seems to have yielded large quantities of gold in the jacotinga formation (which consists of iron ore, quartz, manganese, talc, and mica; generally auriferous throughout). In 1868 Capt. T. Treloar wrote of the mine: "No one can state with accuracy what will be the results from a jacotinga mine. The first year alone, even at Pitangui, might give profits of tens of thousands of pounds." After this it would seem that an attempt was made to pump out the water, get below the old workings, and into virgin ground; but in 1872 the pumps failed to keep the water in fork. The present company, therefore, started with the view of unwatering the old works by means of an adit, and in the directors report for 1877 it is stated that during that year 50 fms. had been driven, making 89 fms. altogether. On Aug. 21 last information was sent to the shareholders that the adit would be completed by about that time, and Mr. Treloar had written to say that in going over the old workings at Pitangui he was surprised at their magnitude and extent, and concludes that large quantities of gold must have been got down to the water level. He added: "Possibly a good discovery of gold may be made soon after the adit level reaches the jacotinga formation," but he may have to explore a little. This is the point to which the attention of the shareholders is now directed with such interest. The company, in 25,000 shares of 1*l*. each, has been in existence about two years; 21,000 shares were issued, and upon which 6s. 6d. per share has been called up, and 4000 shares are held in reserve. The costs are very light, and it is hoped no more money will be required from the shareholders.

MORFA.—The so-called bluestone is remarkably solid and heavy, and consists of zinc, lead, copper, silver, and gold. It is generally treated chemically, but has also been treated mechanically, and in this way yielded a good percentage of each metal. We have heard of 40 ozs. of gold having been sold from refuse heaps of bluestone at Mona, the average yield being several pennyweights per ton. A specimen of the blue-stone may be seen at our office.

NOVICE.—In reading the report of a mine the "ends" are the chief points to look at. They are always, if good, opening out ore ground, which "tribute pitches" and "stopes" take away. For example, say a lode in the "100 east"—that is, the end driving east is worth 20*l*. per fathom, and the 110 east is worth the same sum. The 10 fathoms of ground between the two levels will be opening out good reserves of ore for taking away by means of winzes and stopes, and every fathom driven by the ends adds that length to the ore ground 10 fms. deep. It is because agents' reports in general are not understood without they have been followed up week after week that we prefer keeping before our readers the main points or features in a mine, to which the chief attention is being directed, and upon which much of the success of undertakings may depend.

PARYS MOUNTAIN.—The main object of the 90 cross-cut south is to get under the great open-cast or a cutting which yielded upwards of five millions sterling. It was supposed that a lode would be met with before reaching the open-cast, and this is what we have been daily expecting.

CYPRUS.—This island is supposed to be rich in minerals, and a proposition has been made to us to send out an experienced mining engineer and agent to investigate and select a good mine, the expenses of this to be equally divided, and those who subscribe towards it to have the property acquired. The matter is under consideration.

D'ERESBY MOUNTAIN.—The Fuchuslas lode in No. 1 adit has a branch of solid lead 4 in. wide, which would be about 2 tons per fathom.

LIVERPOOL.—There is no such thing in Wales, or in the world, that we ever heard of, as a lode of 6 ft. solid lead, which would be equal to 36 tons per fathom.

SOUTH ROMAN GRAVELS.—Some splendid stones of good lead have been received at the office of the company from the Sawpit lode, below the deep adit of 40 fathoms. A few weeks ago the agent had orders to try the lode (which produced good quantities of lead in a former working, and is a well-known lode in Roman Gravels) below the deep adit, which is 40 fathoms from surface, and a winze has been sunk 2 fathoms, where the lode is 7 ft. wide, and producing occasional stones of almost solid lead. Means will be taken to keep the water and sink a few fathoms deeper, and this, after, all may prove the turning point of the company.

SATURDAY, AUG. 31.—Market depressed, and prices nominal. Van, 18 to 19; Great Laxey, 18½ to 19½; D'Eresby Mountain, 80 to 90; Aberllyn, 11 to 13; Roman Gravels, 7¼ to 7¾; Leadhills, 2¼ to 3; D'Eresby Consols, 10 to 11; Clementina, 1¼ to 1⅛; South Frances, 3¼ to 4; Peevor, 6 to 6½; West Tolgus, 50 to 52½; Pateley Bridge, 3¾ to 4.

MONDAY, SEPT. 2.—Market again inactive. Aberllyn, 11 to 13; D'Eresby Mountain, 80 to 90; East Van, 3½ to 4; Van, 18 to 19; Tankerville, 3¼ to 3¾; West Chiverton, 5 to 7; South Condurrow, 10⅛ to 11; Parys Mountain, 5s. to 7s.; Agar, 3¾ to 4; Dolcoath, 24 to 26; Grogwinion, 2¼ to 2¾; Grenville, 2 to 2½.

TUESDAY, SEPT. 3.—Market quiet, and prices without change since yesterday.

WEDNESDAY, SEPT. 4.—Market exceedingly quiet, and the following are merely nominal quotations. Aberllyn, 11 to 13; Clementina, 1¼ to 1⅛; Carn Brea, 30 to 32½; Devon Consols, 2 to 2½; Dolcoath, 24 to 26; D'Eresby Mountain, 80 to 90; D'Eresby Consols, 10 to 11; East Van, 3¾ to 4¼; Grogwinion, 2¼ to 2¾; Great Laxey, 18¼ to 19¼; Leadhills, 2¼ to 3; Parys Mountain, 5s. to 7s.; Pateley Bridge, 4 to 4½; Penstruthal, 3s. to 5s.; Roman Gravels, 7¼ to 7¾; Rookhope Lead, 14s. to 16s.; Morfa Du, 15s. to 17s. 6d.; South Condurrow, 10½ to 11; South Frances, 3¾ to 4; Tankerville, 3¼ to 3¾; Tincroft, 6 to 7 ex call; Van, 18 to 19; West Chiverton, 5 to 7; West Tolgus, 50 to 52½; Agar, 3¾ to 4; Grenville, 2 to 2½; Peevor, 6 to 6¼; Wye Valley, 1½ to 2; West Wye Valley, 2½ to 3.

THURSDAY, SEPT. 6.—Market continues very quiet, and prices about the same as recorded yesterday.

FRIDAY, SEPT. 6.—Market for tin shares very flat. Dolcoath, 23 to 25; South Condurrow, 10 to 10½; Tincroft, 5 to 6; Carn Brea, 30 to 32½; Agar, 3¾ to 4; Grenville, 2 to 2½; Aberllyn, 11 to 13; East Van, 3½ to 4; Great Laxey, 18½ to 19½; E'Eresby Mountain, 80 to 90; Van, 18 to 19; D'Eresby Consols, 10 to 11; Tankerville, 3¼ to 3¾; Roman Gravels, 7¼ to 7¾; South Frances, 3¾ to 4¼; Pateley Bridge, 3¾ to 4¼; West Tolgus, 50 to 52; Parys Mountain, 5s. to 7s.; Devon Great Consols, 2 to 2¼.

THE SCOTCH MINING SHARE MARKET—WEEKLY REPORT AND LIST OF PRICES.

During the past week the market has continued inanimate. The slowness of the development of the revival in trade is causing some disappointment, although the chief influence, after the attainment of peace, on which such a revival was expected—the abundant harvests—is proving so far to have fully warranted favourable predictions. This dull season of the year, and, possibly, apprehensions that when trade does revive difficulties in the way of the labour question will have to be met, are introducing the uncertain elements which tend to restrict enterprise, but, as on former occasions, success will ultimately attend the well-directed and persevering efforts everywhere being made to increase the volume of trade.

In shares of iron and coal companies Glasgow Port Washington and Monkland are each 2s. 6d. lower per share. The Scotch iron trade is going from bad to worse, and from 7*l*. per ton in 1873 to about 48s. now the price shows a decline, taking into account the slight changes in the cost of production, quite unexampled in severity. As before indicated, the very existence of the trade is now threatened with extinction, owing to the lower price of English iron. There is no trade that benefits the general industry of any country so much as the iron trade, so it can be easily understood that a collapse in this trade would make a great difference to all interests in Scotland. That the price of iron will rise so as to obviate this catastrophe is seemingly not to be looked for at present, so the ironmasters must look to reducing wages, lordships, and railway rates. On all these items in the cost of production it is possible to effect savings, which in the aggregate will enable pig-iron to be sold at a profit at lower prices than the Cleveland brand, and make it again the cheapest and best value in the world. At the annual meeting of the Omoa and Cleland Company, on Tuesday, the report for the past year was adopted. At the annual meeting of Henry Briggs, Son, and Company, held at Whitwood on Thursday, August the 29th, the report, declaring a dividend of 3 per cent. was adopted. The Chairman stated the past year had been one of the most anxious they ever had, but they appear to be expecting a revival soon as a new pit is to be opened this month. After deducting the usual depreciation the gross profit last year was 12,690*l*. Ashton Vale, 90s. Andrew Knowles and Sons, 97s. 6d. dis. Bilson and Crump Meadow, 2 to 3. Bilboa, 23. Bowling, 82½. Bolckow, Vaughan, B, 37¼. Carnforth, 101½. Consett, 193¾. Charles Cammell and Co., 7 dis. Ebbw Vale, 8¼ to 9¼. Great Western, 45s. John Bagnall and Sons, 22s. 6d. to 27s. 6d. John Brown and Co., 11½ dis. Nant-y-Glo and Blaina (debentures), 7⅛ to 9; ditto (preference) 24½ to 25¼. Parkgate, 22 dis. Pelsall, 12½ dis. Rhymney, 17. Richards and Co., 8¼. South Wales, 5. South Wales Smelting, 4. Staveley, A, 12½ prem. Sheepbridge, 20¾ dis. Scottish Australian, 35s. to 40s. Thorp's Gawber Hall, 1 to 2. Tredegar, A, 9¼ dis. Ulverston, 8. West Mostyn (preference), 1. Whitwick, 70s. W. Cooke and Co., 36½ dis. West Cumberland, 9. Workington Malleable, 14. Shares of foreign copper and lead companies are neglected, and all lower. Rio Tinto shares are reduced 15s. Tharsis, 6s. 3d. Rio Tinto 7 per cent., 5s.; and Huntington, 1s. Alamillos are at 3s. Linares, 4¾. Rio Tinto 5 per cent, 60½. Yorke Peninsula, 6s. to 7s. 6d.

In shares of home mines, Glasgow Caradons are offered 1s. lower at 22s., and the new shares would be taken if a similar reduction would be accepted—at 14s. Tin shares are very depressed, owing to the alarming decline in the price of ore. Wheal Peevor is exceptionally steady, as this is understood to be an improving property. It must be kept in view that there are many rich and productive mines the shares of which are now unusually low in price, entirely owing to the prices of metals; thus investors have good encouragement to purchase, as there can be no doubt the revival of trade will be accompanied with better prices for the produce of such mines. Bampfylde are at 5s.; Bodidris, 20s.; Dolcoath, 25 ex div.; Great Laxey, 18½ to 19½; Melyndwr Valley, 20s.; Parys Mountain, 5s. to 7s.; Pennant, 4¾; St. Patrick, 13s.; Wheal Peevor, 6.

Shares of gold and silver mines have been very quiet. Richmonds have fluctuated very little all the week, and now that it is to be shut down for six weeks the shares may possibly droop. This week's run is $1000 less, at $67,000. There have been some disquieting rumours regarding the title to the Richmond property. The mine appears a very valuable one, as it has paid in cash dividends upwards of 50 per cent. last year, besides earning a great deal more which was retained as working capital. A dividend of 1s. 6d. per share is declared on Frontino and Bolivia, payable on the 11th inst. Birdseye Creek are at 13s. 9d.; Colorado United, 87s. 6d.; Eberhardt, 82s. 6d.; Emma, 2s.; Exchequer, 1s. 6d.; Flagstaff, 10s. to 12s.; Gold Run, 5s 6d.; Javali, 9s.; Port Phillip, 11s.; St. John del Rey, 280; Santa Barbara, 21s. to 23s.; South Aurora, 2s. 6d. to 5s.; Tolima, 5; Tecoma, 2s. 9d.; United Mexican, 75s.

In oil shares, the only movements are reduction of 6s. 3d. on Uphalli, and 1s. 3d. on Young's Paraffin shares. Shares of miscellaneous companies are idle. The London and Glasgow Engineering and Iron Shipbuilding Company has just announced its dividend at the satisfactory rate of 6 per cent., with a balance of 3270*l*., being an improvement of 1 per cent. on last year. Avonside Engine are at 6½ dis. Hopkins, Gilkes, and Co., 9¾ dis. Native Guano, 75s. New Sombrero Phosphate, 10½. Palmer's Shipbuilding, B, 11 dis. Val de Travers Asphalte, 90s. In wagon companies shares prices are—Birmingham, 16. British, 5s. prem. Bristol, 5s. dis. Bristol and South Wales, 70s. prem. Gloucester, 7½. Lancaster, 62s 6d.; Metropolitan, 57s. 6d. prem. Midland 15¾. Swansea, 37s. 6d. Wakefield, 22s 6d. Western, 3. United States Rolling Stock, 14. Yorkshire, 13¾. The 10*l*. paid shares of the Scottish Wagon Company have been sold 1s. 3d. lower at 10⅝. At the meeting of Langdale's Chemical Company yesterday the dividend of 2½ per cent. was declared, carrying over 8161*l*. Langdales shares are at 98s. 3d. Lawe's, 8½ to 8¾. Newcastle, 41s. 3d.

SHOTTS IRON COMPANY.—The report of the directors for the year ended June 30 last has just been issued for the annual meeting on the 11th inst. The net balance of profit is 4781*l*., which is as satisfactory a result as could have been anticipated from the depressed state of trade throughout the country. No dividend is recommended except in the 5 per cent. (pref.) shares, which only absorbes 236*l*., so with last year's balance the amount of undivided profits now stands at 7892*l*. The manager reports that the whole machinery, &c, is of the best description, and the expenditure on capital account has been so ample that in future it can in a great measure be regulated according to circumstances. The cost of production of pig-iron might have been considerably reduced by the use of inferior materials in the manufacture, but it is hardly necessary to state nothing has been used which might endanger the Shotts brand losing the position it has held of the best in the market.

The following calculations show the yield per cent. on money invested at present prices in the shares named, based upon the last average yearly dividends being maintained:—In iron and coal companies, Arniston would yield 7⅜, Benhar 5⅞, Bolckow, Vaughan, A, 5⅜, Cairntable 12½, and Muntz's Metal 6½. In wagon companies, Scottish would yield 5⅜, ditto (new) 5⅛, and United States Rolling Stock, 4¼. In oil companies, Dalmeny would yield 13⅛, Oakbank 7, ditto (new) 6¼, Uphall 2⅜, Young's Paraffin 10, and Price's Patent Candle 7⅜. Tharsis would yield 7½, and the new shares 7¼. Among miscellaneous investments, Milner's Safe may be mentioned to yield 8¼, Phospho-Guano 9⅜, and Val de Travers Asphalte Paving 8.

HUNTINGTON COPPER AND SULPHUR COMPANY (Limited).—At the meeting of shareholders of this company, on Tuesday, a motion that the action against the promoters be withdrawn was carried, as against an amendment that it be not withdrawn. A poll has, however, been demanded, as the directors believe a lot of the proxies held by the supporters of the motion will be thrown out. The meeting stands adjourned to Tuesday next, to receive the report of the scrutineers. Mr. R. Blair, who supported the motion in a speech that might be considered special pleading for the defenders in the action, and remarkable only for its strong language, asserted that by neglecting the mines and devoting their attention to lawsuits the directors will eventually squander the company's funds in fruitless litigation. Sufficient was said to prove that the directors have a most excellent case against the promoters, although it is obvious they could not make known all the evidence they have gathered, and so expose their case. That a majority of independent shareholders, though not possessing a majority of votes, desire the action to go on is unmistakeably evident. Judging from the most reliable reports from the mines, and the experience this company has had of them, they will never yield any profit. A very sensible suggestion was made by Mr. Dun, the seconder of the amendment, that the honourable course for the promoters, seeing they assert that the mine is a good one, is to buy up all the other shareholders at par. It is also most significant that a proposal was made by a party who voted with the motion to the following effect—"Reserving power to the company to institute such other action or legal proceedings against Mr. Huntington and Mr. McEwen as they might hereafter resolve upon." It must always be kept in view the action was only raised after an attempt made on behalf of the promoters to compromise had fallen through, and that the judicial inquiry is now in danger of being burked, not by anything having occurred to render its success unlikely, but simply by a movement in the shares and votes. Since last year the promoters have been working this movement, and have bought up nearly 8000 shares, and it is alleged have had them transferred to friends in order to secure a majority of votes. It practically comes to this, that the majority who supported the motion are the promoters themselves, and they say as shareholders of the company we decide to withdraw this action against ourselves, that it may not come to a hearing, although a majority of independent members had previously empowered it to be raised in the company's name. Should this attempt to quash the enquiry be successful it is satisfactory to know that money will be readily subscribed by the independent shareholders to have it well tried.

MARBLE QUARRY.—A marble property on the Humber River, Newfoundland, is shortly to be taken up by a company in England, and as it is likely to be a great success the following particulars of it may be useful:—The formation of the company has been delayed by the dull times, but the intrinsic merits of the property are so high that it will be considered a very tempting speculation, and the capital readily subscribed, since trade is beginning to revive. It extends a distance of 180 chains across the stratification, by 40 chains in width. The formation, according to the late Professor Jukes, in his report on the Geology of Newfoundland, consists of primary limestone. Several of the beds are suitable for ornamental purposes. Every party on this side to whom the pink variegated specimens have been submitted say there is nothing in the market nearly equal to it, and that it will take the place of alabaster for inside work. The principal bed is from 70 to 80 ft thick. The colour is a variegated cream white, with veins and patches of red, flesh colour, or pink. The grain is that of "sugar-loaf." Blocks can be obtained of any size. There are five other beds which we may shortly allude to. The first is a coarse grained delicate pink, easily worked, and taking a high polish, 14 ft. thick. The next a bed of light purple, 16 ft. thick. The third of moated-grey, clouded with white, 20 ft. thick. The fourth greyish or drab, fine grained. The last two, thin bands of pure white, each from 2 to 3 ft. thick. There are excellent facilities for manufacturing on the spot and for shipping. The freight from the quarry to St. John's would be about 8s per ton by steamer; to Boston and Montreal, about 10s.; and to Liverpool, from 18s. to 23s. The capital is not fixed yet, but it will be very moderate, perhaps 15,000*l*., in 10*l*. shares.

Subjoined are this week's quotations, &c., of mining and metal shares quoted on the Scotch Stock Exchanges:—

Capital. Per share.	Paid up.	Dividends. Rate per cent. per annum. Previous.	Last.	Description of shares.	Last price.
				COAL, IRON, STEEL.	
£10	£8	£7	£7†	Arniston Coal (Limited)	7⅛
10	10	4	4	Benhar Coal (Limited)	6⅛
100	50	22s6d‖	3s8d‖	Bolckow, Vaughan, and Co. (Lim.)	A. 59¼
10	10	10	10	Cairntable Gas Coal (Limited)	8
10	10	4s‖April, 1876		Chillington Iron (Limited)	70s.
10	7	—	—	Clyde Coal (Limited)	7
23	20	10s‖Dec., 1874		Ebbw Vale Steel, Iron, and Coal (Lim.)	9¼
10	6	nil	nil	Fife Coal (Limited)	70s.
10	10	nil	nil	Glasgow Port Washington Iron & Coal (L)	47s. 6d.
10	10	—	—	Ditto Prepaid	50s.
10	10	—	—	Lochore and Capledrae (Limited)	80s.
10	10	nil	3	Marbella Iron Ore (Limited)	60s.
10	10	nil	nil	Monkland Iron and Coal (Limited)	47s. 6d.
10	10	5	4	Ditto Guaranteed Preference	68s.
100	100	nil	nil	Nant-y-Glo & Blaina Ironworks pref. (L)	25
6	6	nil	nil	Omoa and Cleland Iron & Coal (L. & Red.)	10s.
1	1	15	15	Scottish Australian Mining (Limited)	37s. 6d.
1	10s.	15	15	Ditto New	15s.
Stock	100	nil	nil	Shotts Iron	91
				COPPER, SULPHUR, TIN.	
4	4	—	—	Canadian Copper and Sulphur (Lim.)	2s.
10	7	7s 6d‖	3s‖*	Cape Copper (Limited)	30¼
1	1	7½	2½	Glasgow Caradon Copper Mining (Lim.)	22s.
1	15s.	7½	2½	Ditto New	15s.
10	9¾	nil	nil	Huntington Copper and Sulphur (Lim.)	33s.
4	4	—	—	Panulcillo Copper (Limited)	20s.
10	10	6†	6†	Rio Tinto (Limited)	70s.
20	20	7	7	Ditto, 7 per cent. Mortgage Bonds	14¼
100	100	5	5	Do. 5 p.ct. Mor. Deb. (Sp. Con. Bds.)	6¼
10	10	22½	20	Tharsis Copper and Sulphur (Limited)	23¼
10	7	22½	20	Ditto New	16¼
1	1	—	—	Yorke Peninsula Mining (Limited)	6s.
1	1	—	—	Ditto, 15 per cent. Guaranteed Pref.	20s.
				GOLD, SILVER.	
1	1	—	—	Australian Mines Investment (Limited).	8s.
5	5	7s. 6d‖	7s. 6d‖	Richmond Mining (Limited)	8¾
				OIL.	
10	7	6	15	Dalmeny Oil (Limited)	8
1	1	7½	25	Oakbank Oil (Limited)	42s. 6d.
1	5s.	—	25	Ditto	12s.
10	10	7½	2	Uphall Mineral Oil (Limited) "A"	8/ 1s 3d
10	10	—	—	Ditto "B" Deferred	10
10	10	—	—	West Calder Oil (Limited)	15s.
10	8½	17½	17½	Young's Paraffin Light & Mineral Oil (L).	14/ 16s 3
				MISCELLANEOUS.	
50	25	5	6	London and Glasgow Engineering & Iron Shipbuilding (Limited)	24
7	7	15	10	Phospho Guano (Limited)	9
10	10	6	6	Scottish Wagon (Limited)	10⅝
10	4	6	6	Ditto New	81s. 6d.

† Interim. ‖ Per share. * For six months of 1878.

NOTE.—The above lists of mines and auxiliary associations are as full as can be ascertained, Scotch companies only being inserted, or those in which Scotch investors are interested. In the event of any being omitted, and parties desiring a quotation for them and such information as can be ascertained from time to time to be inserted in these lists, they will be good enough to communicate the name of the company, with any other particulars as full as possible.

J. GRANT MACLEAN, Stock and Share Broker.

Post Office Buildings, Stirling, September 5.

THE LOCHBURN IRONWORKS, NEAR GLASGOW.

The manufacture of cast-iron pipes has long been carried on in the Glasgow district most extensively, and some of the establishments, of which there are about a dozen, are of great extent, while they have supplied gas and water pipes to almost all parts of the world, but more particularly to our colonies. It may be said that the Glasgow district is the most important seat of the pipe founding industry in the world, as it is of the iron shipbuilding trade. Recently another large pipe foundry, to be known as the Lochburn Ironworks, has been opened near Lochburnie, and occupies a site of 14 acres close to the Forth and Clyde Canal and the Glasgow and Dumbartonshire branch of the North British Railway. Thus they have excellent accommodation for receiving their materials and dispatching their finished goods. The owners are Messrs. MACFARLANE, STRONG, and Co (Limited), the firm consisting of the minimum number of partners required by the Limited Liability Act. The intention is to turn out annually from 20,000 to 25,000 tons of pipes, from 3 in. to 48 in. in diameter. In the portion of the foundry already in operation pipes of the smaller sizes—9 ft. lengths, and varying from 3 in. up to 18 in. diameter—are produced, but the principal part of the foundry will be devoted to the larger sizes. The main building of the Lochburn pipe foundry is a rectangular block of 260 ft. in length by 110 ft. in breadth, the walls of which rise to a height of 30 ft. It is arranged in six bays, and is covered by a roof of six spans, which are disposed symmetrically, two lower ones at each end, and two central spans, to the ridges of which the height is 50 ft. The roofing is supported by massive cast-iron columns, each made in two portions, and weighing 2¼ tons, and each 22 ft. in height, or 44 ft. over all. These columns are supplied by Mr. Andrew Strang, Hurlford, near Kilmarnock; and the girders, which are of Belgian manufacture, were supplied by Mr. John Elwell, Birmingham; while the roofing was executed by Messrs. P. and W. Maclellan, a well-known Glasgow engineering firm, with whom iron roofing and bridge building are two very special branches of business. In that portion of the foundry which is already in operation there is a most complete set of fixed and movable plant, the arrangement of which is such as to ensure the utmost amount of economy both as to time and labour, almost every operation being done by machinery where the application of mechanical power is possible. Within a short distance of the north boundary wall of the main building there are in succession the pan-mill for preparing the loam, the core preparing appliances, and the core-drying stoves; then, passing off at right angles, there is a tramway for running the finished cores on bogie carriages to within sweep of a crane, by which they are raised into position and placed in the moulds when the latter are ready for their reception; and, lastly, there are the moulding platform, the stoves for drying the moulds, and the casting "bank."

First in order, the moulding boxes, with their two halves firmly bolted together, are run on their respective bogie (or mould) carriages from the front of the casting bank along a tramway for a few yards, where they are taken in hand by the squads of moulders busily engaged on the moulding platform, who hoist and place in position the "pattern" by which the exterior of the pipe is to be formed. Then they skilfully and expeditiously ram with sand the space between the pattern and the walls of the moulding box. They next withdraw the pattern, and "black-wash" the interior of the mould, and at once the moulds, still on their carriages, are run into the drying stoves, where they are exposed to a strong heat for an hour or so, when they are withdrawn and run along the front of the casting bank. The dried cores are then placed in them, and fixed in position with the utmost mathematical exactness, the moulds now being ready for the introduction of the molten metal into the concentric space which is due to the difference of diameter of the "pattern" and the core which forms the internal surface of the pipe. By this time it is to be supposed that the iron is run off from one of the cupola furnaces and collected in a gigantic ladle. The latter is at once raised by crane power to a sufficient height above the row of moulds ranged in front of the casting bank, gently tipped, and its contents skilfully poured into the concentric space left in each mould. In due time the moulds are opened, and the pipes are taken out and rolled down a gentle incline out of the foundry proper into an adjacent building, where they are subjected to a series of finishing operations—cleaned and

dressed both externally and internally. They are then fixed in a cutting machine, where a length of about 9 in. of the "spigot" end is cut off so as to leave the remainder solid throughout; proved or tested by exposing them to an internal pressure of from 300 to 1000 ft. head of water; next coated with Dr. Angus Smith's preservative composition at a high temperature; and, lastly, turned and bored if so required. The principal foundry occupies the central division of the main building, and the southernmost division is divided into two parts—first a jobbing foundry, and second a mechanics' shop, pattern shop, &c. The cupolas already at work are blown by one of Roots' blowers, with engine combined on the same sole plate. This ingenious and effective piece of mechanism is supplied by Messrs. Thwaites and Carbutt, of Bradford, who are the sole makers in this country. The steam cranes are by Messrs. Glen and Ross, of the Greenhead Engine Works, Glasgow. Already at those works orders have been executed, or are in course of execution, for the Liverpool Corporation Waterworks, the Liverpool United Gas Company, the Edinburgh and District Water Trust, the Dundee Corporation Waterworks, the Dunbar Waterworks, &c., Mr. W. G. Fossick, of Cannon-street, has been appointed London agent of the firm.

— *Iron and Coal Trades Review.*

THE COAL TRADE.

Mr. J. R. Scott, the Registrar of the London Coal Market, has published the following statistics of imports and exports of coals into and from the port and district of London by sea, railway, and canal during August, 1878:—

By sea.	Ships.	Tons.
Newcastle	148	123,094
Seaham	29	15,271
Sunderland	94	63,450
Middlesborough	4	1,145
Hartlepool	69	23,656
Scotch	6	2,456
Welsh	6	1,214
Yorkshire	11	706
Small coal	12	3,933
Cinders	2	122
Total	379	235,047
Imports—Aug., 1877	410	239,473

By Railway and Canal.	Tons	c.
London & North-Western	100,007	16
Great Northern	61,345	0
Great Western	96,814	0
Midland	135,448	0
Great Eastern	49,251	3
South-Western	7,242	11
Lond., Chatham, & Dover	1,472	0
South-Eastern	1,340	18
Grand Junction Canal	244	5
Total	453,165	13
Imports during Aug., 1877	454,284	13

Comparative Statement, 1877 and 1878.

By Sea.	Ships.	Tons.
Jan. 1 to Aug. 31, 1877	3445	1,972,646
Jan. 1 to Aug. 31, 1878	3211	1,963,229
Decrease—1878	234	9,417

By Railway and Canal.	Tons.	c.
Jan. 1 to Aug. 31, 1878	3,544,134	0
Jan. 1 to Aug. 31, 1877	3,391,506	0
Increase—1878	152,628	0

EXPORTS.

Railway-borne coal passing *in transitu* through district	Tons	72,847
Sea-borne coal exported to British possessions, or to foreign parts, or to the coast	Tons	33,432
Ditto, sent beyond limits by railway		8,641
Ditto, by canal and inland navigation		2,160= 44,433
Railway-borne coal exported to British possessions, or to foreign parts, or the coast		28,934
Ditto, by canal and inland navigation		52= 28,986
Sea-borne coal brought into port and exported in same ships		728
Total quantity of coal conveyed beyond limits of coal duty district during August, 1878		146,994
Ditto, August, 1877		151,431

Comparative Statement, 1877 and 1878.

Total distribution of coal from Jan. 1 to August 31, 1878	1,354,229
Ditto, Jan. 1 to August 31, 1877	1,239,287
Increase in the present year	114,942

General Statement.

Increase in coals imported by railway and canal, present year		152,628
Less decrease by sea	9,417=	143,211
Deduct increase in coals exported		114,942
Total increase in trade within London district during present year		28,269

THE COPPER TRADE.

Stocks in Europe:—	Tons.	
Chili ores and regulus, Liverpool & Swansea (equal to fine)	3,845	
Chili bars in Liverpool	16,779	
Ditto Swansea	2,365	
Chili ingots in Liverpool	—	
Ditto Swansea	—	
Foreign copper (chiefly Australian) in London	5,493	
Ditto ditto landing	300	
English copper in London	50	
Chili bars and ingots and Barilla in Havre	9,388	
Other copper in Havre	625	= 38,845
Afloat and chartered from Chili to Europe (advised by mail):—		
Ores and regulus (equal to fine)	2,432	
Bars and ingots	4,049	= 6,481
Afloat from Australia (advised by mail):—		
Fine copper		1,655
Afloat and chartered from Chili to Europe (advised by cable):—		
Fine copper		2,950
Total		Tons 49,931

Price of bars, 61*l.* 5s.; Wallaroo, 70*l.*; English tough, 66*l.* 10s. Total shipments of Lake Superior copper to Europe from Jan. 1 to Aug. 14, 1878—Havre, 2258 tons; Hamburg, 1238; Bremen, 35; Rotterdam, 62; Antwerp, 22; London, 75: total, 3690 tons.—1877, Havre, 2401 tons; Hamburg, 154; Rotterdam, 100; Liverpool, 50; total, 2705 tons.

HENRY R. MERTON AND CO.

Leadenhall street, September 1.

Stocks continued to increase throughout August, and are now little short of 50,000 tons (the largest on record). The price has fallen to 60*l.* The daily transactions are, however, very limited, and it is doubtful whether any quantity of bars could be placed even at this figure. Consumers will not be convinced that they should cover their wants at present low figures. Exportation is checked by the continued fall in rates of exchange in the East, and speculation is quite dead. The result of this state of trade is the present very large stock, mostly in importers' hands. The position is also aggravated by financial derangements in Chili, which have already given rise to the shipment of accumulated stocks of bars. It would be most unreasonable to suppose that prices at present ruling will not check supplies; the out turn from the deep and poor mines must for a time be curtailed, and the threatened import duty of £4 per ton on coal will also add to cost. In times past such a state of affairs as now exists in the copper trade would have led to those interested clearing the market of all available supplies, a reaction to prosperity being almost the certain sequence; but all spirit of enterprise has died out of the trade, and the only ambition apparently left is to compete for the supply to consumers, both at home and abroad, of a far larger quantity of copper than has been used in any of the four past years, without the slightest profit to anyone. These are the occasions when investors may with some reason take hold of such an article as copper with success, and show that they have more wisdom than those immediately interested. We subjoin our usual monthly statistics:—

The imports of copper into England for the first seven months of the following years were—1874, 46,939 tons; 1875, 48,510 tons; 1876, 45,918 tons; 877, 54,0 6 tons; 1878, 51,428 tons. The exports for the same periods were—1874, 34,332 tons; 1875, 27,842 tons; 1876, 28,6 8 tons; 1877, 29,250 tons; 1878, 33,338 tons. The position from September 1, 1877, to September 1, 1878, was as follows:—

	Price.	Stock on hand.	Stock, including afloat and chartered. Advised by mail only.
1877—September 1	£ 67 0 0	Tons 31,004	Tons 35,437
October 1	66 0 0	31,823	36,239
November 1	65 10 0	31,454	36,177
December 1	63 10 0	30,701	36,861
1878—January 1	66 0 0	31,388	38,713
February 1	66 0 0	31,305	37,769
March 1	65 0 0	33,235	40,535
April 1	63 10 0	34,345	41,460
May 1	62 0 0	36,416	42,725
June 1	64 10 0	37,410	42,809
July 1	64 0 0	35,983	41,782
August 1	61 10 0	38,913	43,325
September 1	60 15 0	38,676	44,985

And the comparative positions at the same date of the past four years with the present:—

	Price.	Stock.	Stock, including afloat and chartered. Advised by mail only.
1874—September 1	£ 78 0 0	Tons 26,852	Tons 33,159
1875—September 1	83 0 0	23,022	32,342
1876 September 1	72 0 0	24,417	30,548
1877—September 1	67 0 0	31,004	35,437
1878—September 1	60 15 0	38,676	44,985

The charters to August 31, 1878, were 32,150 tons, against 28,400 tons in 1877.

Leadenhall-street, London, September 6. HENRY ROGERS, SONS, AND CO.

Arrivals here during the fortnight of West Coast, S.A., produce:—Zeta, from Pisco, 180 tons ore; Chiloe, from Carrizal, 690 tons regulus; Potosi, from Valparaiso, 775 tons bars, 70 tons ingots. At Swansea, nil. Stocks of copper (Chilian and Bolivian) in first and second hands likely to be available, we estimate at—

	Ores.	Regulus.	Bars.	Ingots.	Barilla.
Liverpool	—	917	16 779	—	—
Swansea	1622	6907	2,365	—	—
Total	1622	7824	19,144	—	—

Representing about 22,989 tons fine copper, against 23,283 tons Aug. 15; 18,282 tons Aug. 31, 1877; 13,863 tons Aug. 31, 1876; 13,459 tons Aug. 31, 1875. Stock of Chili copper in Havre, 7607 tons fine, against 7916 tons Aug. 31, 1877; stock of Coro Coro barilla in Havre, 2075 tons against 305 tons Aug. 31, 1877; stock of Chili copper afloat and chartered for to date, 9000 tons fine, against 8700 tons Aug. 31, 1877; stock of foreign copper in London, chiefly Australian, 6000 tons fine, against 4300 tons Aug. 31, 1877. HARRINGTON, HORAN, AND CO.

Liverpool, August 30.

The chief feature of interest was the public sales of Australian. Here the biddings proved slow, and the average prices realised show a fall of 2*l.* to 3*l.* as compared with June sales. Fluctuations in Chili bars have been small until the close, when the announcement that charters from the West Coast for the last fortnight in August were 4000 tons, there was a depreciation in values of about 1*l.* per ton. For English there exists a fair demand, and manufacturers are prepared to meet the market. We quote Chili bars 60*l.* 5s.; Wallaroo 70*l.*; Burra 69*l.*; tough 66*l.*; manufactured 71*l.* to 74*l.*; ore 12s. per unit. The imports and exports from January to July were, by the Board of Trade Returns—

Imports.	1878.	1877.	1876.
Ore Tons	57,416	57,478	39,711
Regulus	20,096	20,759	17,879
Copper	23,882	24,039	22,437
Exports.			
Foreign raw	6,989	8,597	8,427
English raw	11,966	6,060	6,800
Manufactured, including yellow metal and brass	15,512	16,700	13,183

London, September 5. FRENCH AND SMITH.

THE TIN TRADE.

	July 31, 1878.	Aug. 31, 1878.	Aug. 31, 1877.	Aug. 31, 1876.
Straits and Australian, spot...Tons	9,525	9,659	8,781	7,411
Ditto, landing	550	451	1,309	819
Straits afloat	525	120	—	600
Australian, afloat	1,855	2,341	1,788	1,550
Banca, on warrants	1,525	1,186	915	775
Ditto, Trading Co.'s hands	902	1,496	1,446	1,706
Ditto, afloat	190	75	69	212
Billiton, spot	1,623	1,718	1,502	1,140
Ditto, afloat	1,370	1,200	1,000	1,000
Australian tin in Holland	426	426	700	795
Total Tons	18,491	18,672	17,510	15,508
Deliveries during the month in London	815	1,033	793	815
Ditto, Holland	553	575	801	872
Total Tons	1,418	1,608*	1,594	1,687

* Also 239 tons overside to America.

Shipments from Straits in August	Tons	1°0	
ditto Australia in August		1109	
	During 12 months ending Aug. 31, '78.	During 8 months, '78.	During 8 months, '77.
Shipments from Straits to London	Tons 3, 31	2,4 0	2,430
Shipments from Australia to London		9,640	6,375	5,925
Deliveries of foreign tin in London		11,428	7,939	6,852

London, September 2. A. STRAUSS AND CO.

Our tin market has been decidedly flat during the month now under review. Holders coming out somewhat more freely a good business has resulted at gradually lower prices, the decline since July being fully 1*l.* The immediate future is anything but encouraging to holders, both stocks and arrivals continuing unprecedentedly large. Speculators for a rise seem to be fully alive to the critical state of the article, and keep from the market in consequence. The "bear" party certainly have the best of it for the present, and we are afraid this will continue for some time to come. Quite a dull feeling rules at the close, and it is well nigh impossible to effect sales to any extent at our quotations. Banca has moved off satisfactorily, the price declining from 39¼ fl. to 38 fl. Contracts for delivery ex July sale changed hands from 39 fl. to 38¼ fl.—Billiton: We have to report a considerable business, chiefly for covering previously made "bear" sales; the price declined from 37 fl. to 36 fl. Buyers having satisfied their wants, nothing but a lower figure will induce them to resume their operations: 10,000 peculs Billiton offered in public sale at Batavia on the 14th inst. fetched the average price of 40·83 fl. costing to sell here, about 36¾ fl. by steamer. Next sale, comprising the same quantity, will be held on Oct. 14.

The position of Banca tin in Holland on Aug. 31, according to the official returns of the Dutch Trading Company, was—

	1878.	1877.	1876.
Import in August Slabs	20,035	1,052	17,469
Total eight months	99,809	115,249	72,690
Deliveries in August	10,813	18,141	18,300
Total eight months	78,288	93,570	81,875
Stock second hand	38,000	29,290	24,781
Unsold stock	48,885	46,260	57,927
Total stock	86,885	75,550	82,708
Afloat Peculs	1,200	1,100	3,400
Statement of Billiton:—			
Import in August Slabs	10,689	6,200	17,400
Total eight months	76,764	77,744	71,479
Deliveries in August	9,730	8,417	9,467
Total eight months	61,048	59,193	64,477
Stock	54,226	49,171	36,681
Afloat Peculs	17,000	14,000	13,000
Quotation { Banca fl.	38	40½ fl.	43½ fl.
Aug. 31 { Billiton	36	38½	42½

These combined returns of Banca and Billiton for 1878, compared with those for 1877, exhibit—An increase of the import for August of 734 tons; a decrease of the import for the eight months of 519 tons; a decrease of the deliveries for August of 189 tons; a decrease of the deliveries for the eight months of 420 tons; an increase of the stock second hand of 430 tons; an increase of the unsold stock of 82 tons; an increase of the total stock of 512 tons; a decline of the quotation of Banca of 4*l.* 3s. per ton. The Government Returns for the month of June are—

EXPORT OF TIN FROM HOLLAND.

	June.			Six months.		
	1878.	1877.	1876.	1878.	1877.	1876.
Germany Tons	195	312	318	1716	1565	1632
England	14	5	19	73	179	29
Belgium	117	143	267	769	924	940
France	87	41	151	232	351	256
Hamburg	47	32	38	345	191	193
United States	—	—	—	10	55	17
Other countries	20	127	140	232	260	190
Total	480	660	931	3377	3525	3260

Rotterdam, August 31. EBELING AND HAVELAAR.

This metal fell a further 4*l.* during August, and with the apparently unlimited supply from Australia the price will probably further recede—in fact, nothing but a new use for tin which will consume the Australian discoveries can prevent a permanent lower range of prices. Consumption of foreign tin does not decrease, in fact, it has necessarily increased, as the English supply is far shorter than formerly, but it does not at all keep pace with the supply. Plates are lower than ever, and it is difficult to understand how they can be made at all at quotations ruling.—*September 6.* HENRY ROGERS, SONS, AND CO.

Australian importers during the month were free sellers, and as the demand continues purely for consumption we have to record a drop of about 3*l.* per ton during August. The shipments from Australia are advised as over 1000 tons, but it must be borne in mind that these advices include shipments to America *via* London, which have proved rather considerable of late. From the Straits about 120 tons were shipped. Deliveries continue satisfactory. Below we give our usual statistics:—

	1878. Aug. 1.	1878. Sept. 1.	1877. Sept. 1.	1876. Sept. 1.
Foreign in London Tons	10,070	10,1 1	10,074	7,730
Banca in Holland	1,523	1,188	915	774
Billiton in Holland	1,622	1,695	1,500	1,146
Afloat for Europe, Straits, advised by mail and wire	500	120	nil	550
Afloat, Australian ditto	1,850	2,150	1,850	1,500
Afloat, Billiton	1,000	1,000	800	800
Banca in Dutch Trading Co.'s hands	902	1,528	1,445	1,810
Banca afloat, by sailing vessels	200	80	70	210
Total	17,669	17,872	16,654	14,520

September 5. FRENCH AND SMITH.

THIN SEAM COAL CUTTING MACHINE.

The introduction of machine cutting in thin seams has usually presented great difficulty, owing to the necessity for providing rails and sleepers for the proper support of the machinery; but this has been remedied in a very ingenious manner by Mr. H. RIGG, of Bonnyrigg, and A. MEIKLEJON, of Dalkeith, whose device has the peculiarity that the whole of the working parts are arranged so that the cutting wheel or disc can cut or hole-in the mineral to the under side of the sleeper supporting the rails on which the machine travels, so as to leave no portion of the mineral to be afterwards lifted by hand-labour or otherwise. The machine is made so low as to work in very thin and valuable seams, and this in many cases without cutting away any portion of the coal, at the same time retaining great rigidity and simplicity of construction not hitherto attained. The dragging gear for dragging the machine along the face of the mineral while employed is also improved, so that an endless chain can be used, and means of adjusting the machine to cut at any angle.

The framework of the machine is constructed of sufficient size and strength to carry the motive and cutting powers. The framework is mounted on four wheels in order that the machine may readily be made to travel along the face of the mineral which it is desired to cut. The motive power is derived from steam or compressed air acting upon the pistons of two or more cylinders mounted on the said frame, the power being transmitted to the cutting wheel by means of cranks and bevilled pinion, which gear into the revolving cutting wheel or disc. The dragging or travelling of the machine along the face of the mineral is accomplished by an endless chain, which is fixed at both ends of the wall of mineral to be cut, and in passing round and over two pitched chain wheels, which catch the links of the chain, the machine being thus dragged or travelled along the face of the mineral while engaged in working. At each of the corners of the machine are fixed adjusting screws, which are used for raising and lowering the machines to suit the dip and rise of the seam of mineral. The axle boxes are so constructed as to allow of the whole framework, with disc or cutting wheel, being adjusted to any angle irrespective of the level of the rails and sleepers. The disc or wheel on which the cutters are fixed may have more or less teeth, as may be thought proper, and the shape or form of the cutters is made to suit the nature of the mineral the machine is to be engaged in cutting. The wheel or disc is held in position by an arm or bracket projecting from the framework.

MESSRS. CASSELL'S PUBLICATIONS.—The September numbers of the several monthlies at present being issued by Messrs. Cassell, Petter, and Galpin continue to maintain the excellence of style which has characterised their predecessors. "Science for All" contains an excellent engraving of the Irish Elk Restored, from a drawing by C. Berjeau. An interesting article—How Plants Grow—is contributed by Dr. G. Dickie, Emeritus Professor of Botany in the University of Aberdeen. Lakes, and How they have been Formed, is the subject of a memoir by Prof. Duncan, of King's College, London; whilst Mr. Proctor deals with The Ruler of the Solar System. "Great Industries of Great Britain" contains, amongst other articles very readable, one on Cotton, by David Brenmer; the eighth part of Shipbuilding; the seventh parts of Hemp, Flax, and Jute, and of Wool and Worsted; the eighth part of Iron and Steel; and the fourth part of Foreign Rivalries. The twenty-first part of the reprint of Knight's Dictionary of Mechanics extends from the end of "Cradle" to "Crystotome," and contains many useful articles. This dictionary when complete will form a very handsome ornament to the mechanics' library.

MANUFACTURE OF STEEL INGOTS.—The invention of Mr. G. W. KNOX, B.Sc., relates to the production of ingots or blooms to be used in the manufacture of plates for fort and ship armour and for other purposes, and it consists in casting such ingots or blooms of steel, with internal cores or bonds of wrought iron or other suitable metal or material, by placing such cores or bonds in the mould, and running in the molten steel over and around them, so as to form castings, the exterior and main body of which is composed of steel, whilst portions of the interior consist of the said cores or bonds, the interstices being filled with the steel, which becomes cemented or united to the cores or bonds. The cores or bonds may consist of rods, bars, plates, or wires of any convenient section and dimensions, any required number of which, arranged in any suitable manner or direction, may be employed. By this invention greater cohesive power will be obtained, whilst in the case of armour-plates a means will be provided for the relief of the waves of strain produced in the plate under the impact of projectiles, and which waves will find outlets along the lines of the cores or bonds in lieu of being confined within the plate until the rupture ensues. In the term "steel" he includes pure iron (Fe) and all compounds of iron containing less carbon than is contained in cast or pig iron, and which pure iron or compounds of iron are capable of being reduced to a molten condition.

IRON MANUFACTURE.—For many years past interesting communications have from time to time appeared in the Journal from Mr. Benjamin Rogers, of Merthyr Tydvil, in which he has endeavoured as a working man to put before employers during the last 20 years the necessity of more practical knowledge amongst both men and masters. Mr. Rogers now complains that he has not received the kind of treatment he might reasonably have expected, and that what he has had to submit to has resulted from his simple advocacy of the practical and desirable requirements of the trade, for it is, in his opinion, quite evident that since the abandonment of the late Mr. Hill's method in iron manufacture that the majority of ironworkers are a long way below par in competing with both America and the continental nations of Europe; he thinks it is really too bad that any individual, however humble, should have to undergo such undeserved privations for the advocacy of what he conceives would benefit all. It is to be hoped that Mr. Rogers will obtain an opportunity of testing his principles of furnace construction and iron manufacture.

The following reports were received too late for insertion in their proper place:—

COURT GRANGE.—James G. Green, Sept. 4: I am pleased to be able to report that all is progressing favourably here. We have a fair supply of water, and the machinery is working well. There is nothing particularly new in any of our underground bargains.

HOLLOWAY'S OINTMENT AND PILLS—COUNSEL FOR THE DELICATE.—Those to whom the changeable temperature is a protracted period of trial should seek the earliest opportunity of removing all obstacles to good health. This cooling ointment, perseveringly rubbed upon the skin, is the most reliable remedy for overcoming all diseases of the throat and chest. Diptheria, relaxed tonsils, sore throat, swollen glands, ordinary catarrh, and bronchitis, usually prevailing at this season, may be arrested as soon as discovered, and every symptom banished by Holloway's simple and effective treatment. The ointment and pills are highly commended for the facility with which they successfully contend with influenza; they allay in an incredibly short time the distressing fever and teasing cough.

LEAD ORES.

Date.	Mines.	Tons.	Price per ton.	Purchasers.
Sept. 5	Foxdale	100	£15 0 0	Weston, Son, and Co.
—	Tankerville	80	9 18 6	Walker, Parker, & Co.
—	ditto	20	8 6 0	Runcorn Company.

BLENDE.

Date.	Mines.	Tons.	Price per ton.	Purchasers.
Sept. 4	West Roskear	57	£ 2 6 6	Vivian and Sons.

BLACK TIN.

Date.	Mine.	Tons c. qr. lbs.	Price per ton.	Amount.	Purchaser.
Sept. 4	Wheal Prussia	24 11 1 14	—	£895 10 5	—

COPPER ORES.

Sampled Aug. 21, and sold at Tabb's Hotel, Redruth, Sept. 5.

Mines.	Tons.	Price.	Mines.	Tons.	Price.
Mellanear	79	£2 9 0	West Tolgus	75	£4 17 0
ditto	71	2 16 6	ditto	73	6 15 0
ditto	70	3 11 6	ditto	59	3 18 6
ditto	69	2 16 6	ditto	43	6 3 0
ditto	67	2 12 6	ditto	40	6 3 0
ditto	63	3 1 0	West Seton	63	3 6 6
ditto	59	2 13 0	ditto	34	3 14 6
ditto	47	2 18 0	ditto	33	3 10 6
ditto	35	8 12 6	Carn Brea	36	2 0 0
East Pool	81	2 14 6	ditto	3	4 18 6
ditto	62	2 13 6	South Roskear	13	3 10 6
ditto	58	1 18 6	Killifreth	10	3 1 0
ditto	44	1 15 6	Poldice	6	2 13 0
ditto	42	2 11 0	Rule & Williams's Pre.	2	15 10 6
ditto	36	1 14 6	Trumpet Consols	1	20 1 0

TOTAL PRODUCE.

Mellanear	560	£1801 17 0	South Roskear	13	£45 16 6
East Pool	323	745 10 6	Killifreth	10	30 10 0
West Tolgus	290	1598 10 6	Poldice	6	15 18 0
West Seton	130	452 9 0	Rule & William's Pr.	2	31 1 0
Carn Brea	39	86 15 6	Trumpet Consols	1	20 1 0

Average standard	£ 86 2 0	Average produce	7¼
Average price per ton		£2 10 6	
Quantity of ore	1374	Quantity of fine copper 99 tons 19 cwts.	
Amount of money		£4828 9 0	
LAST SALE.—Average standard	£91 0 0	Average produce	6¾
Standard of corresponding sale last month, £ 83 6 0—Produce, 8¾			

COMPANIES BY WHOM THE ORES WERE PURCHASED.

Names.	Tons.	Amount.
Vivian and Sons	285½	£1037 13 9
Grenfell and Sons	347½	1816 10 9
Nevill, Druce, and Co.	323½	909 13 9
Williams, Foster, and Co.	284½	622 2 9
Mason and Elkington	133	442 8 0
Total	1374	£4828 9 0

NO SALE on Thursday next, Sept. 12.

Copper ores for sale at the Royal Hotel, Truro, on Thursday week—Mines and parcels.—Devon Great Consols 845—South Caradon 440—Marke Valley 345—Gunnislake (Clitters) 303—Glasgow Caradon 200—Hingston Down 141—Bedford United 73—Bawden's Ore 37—East Caradon 25—West Maria and Fortescue 15.—Total, 2427 tons.

Mining Correspondence.

BRITISH MINES.

ABERDAUNANT.—S. Toy, Sept. 4: The deep adit cross-cut is now driven north 3 fms. 5 ft.; there is no change in the ground to notice during the past week. We have commenced to clear the No. 1 adit, which is a cross-cut towards the north lode, and about 10 fms. below the surface. I expect to get into the lode and dial the ground in a week or two.

ABERLLYN.—John Roberts, Sept. 4: We are getting on with the clearing of the deep adit as fast as circumstances will admit. We are now cutting down a corner, so as to make a proper curve to enter the cross-cut leading to the winze from the middle, or No. 2, adit, which is shown on the plan. The blende lode is still looking well, and when we have opened on it we shall be able to extract large quantities. I would for this purpose strongly recommend the sinking of a winze from No. 1 adit down to this, as it would give us a stope from 7 to 8 fms. high. This I think should be done at once, so as to open all the ground we possibly can against we have the dressing machinery ready.

BEITWS-Y-COED.—H. T. Haley, Sept. 5: The lode in shallow adit east is improving—a nice-looking lode. The western end in this adit is opening out steady and well, and of about the same value as last week—about 2 tons. The winze in bottom of this adit is looking well, orey the whole width of winze, worth 1 ton of lead per fathom. The deep adit end has a nice leader of mundic, blende, spar, and stones of lead, and as we have only a few feet further to drive to get under the winze we may expect a good improvement here quickly. All surface work is going on satisfactorily.

BLUE HILLS.—S. Bennetts, P. Bennetts, Aug. 31: The top lode east end is slightly improved during the past week; in the west end there is no change to notice. The main lode in the east end, at the same (the 80) level, is worth 6*l.* per fathom. And the north lode in the 30 east end continue to open out satisfactorily, and worth 12*l.* to 15*l.* per fathom.

BODIDRIS.—H. Hotchkiss, Sept. 4: Our underground operations are still progressing. In the winze in bottom of the 60 the lode is well defined, with a good underlie, and contains spar and blende, mixed throughout with shale—we are down 23 ft. In the 45 end east, on the middle lode, the lode in the forebreast is close, and the ground more shaley; this, I think, will prove to be the bed of the orey ground we have in the easternmost shaft, which when cut through will open out into good bearing measures, as I am pleased to say the ground in the bottom of the shaft is most promising, with good solid lumps of lead ore in the lode of first-rate quality, but the water has been rather troublesome during the last week at this shaft. The men are doing good work, with fair progress. No change in the stope in the 30. The men have been putting in timber here, so that little has been done on the ore.

BRITISH (Silver-lead).—John L. M. Fraser, Sept. 5: The lode in the shaft is now 4 ft. wide, with strings of ore throughout, and evidently increasing in value as depth is obtained; we have opened on the back of the lode in various places, and find them all with strings of ore in them. We have a nice pile of ore ready for the crusher, which we hope to have fixed before the end of the month. I would strongly recommend all who have taken an interest in the mines, and those who intend to do so, to come over and inspect for themselves, and I am sure they will be quite satisfied with the prospects.

COMBMARTIN.—T. Comer, Sept. 5: In the cross-cut from the 15 east we are meeting with capel, spotted with lead and mundic, and the end is letting out water. In the adit cross-cut, driving north, the ground continues highly mineralised, and the men are making fair progress. The lode in driving north-west of adit cross-cut is without change. The lode in driving south-east of adit cross-cut has a much less underlie, and is improving both in size and character; at this point we have over 20 fathoms of backs, and about 40 fathoms west several tons of lead ore were raised from this lode by former workers.

CWM DWYFOR (Pensarn Mine).—J. Ridge, Sept. 5: In Morgan's shaft the lode is from 3 to 4 ft. wide, and has improved since my last report; there is a strong mixture of lead ore 4 in. wide in the west end of the shaft, which looks kindly for improvement. The strings and spots of ore in the east end are dipping west, and are now to the middle of the shaft; present depth of shaft from surface 19 fms. —P.S. We have just met with another lode, or branch of a lode, 1 ft. wide, on the north side of the shaft; it is nearly perpendicular, and, therefore, will form a junction with the lode we are sinking on in depth and to the west, but diverges from it in going east. There is a horse of ground between the two parts in that end of the shaft. I shall be able to write more on this in two or three days when we have gone a little deeper.

DE BROKE.—J. Phillips, Sept. 4: The ground in Wilson's shaft, sinking under the 45, is a little easier; the lode is 3 ft. wide, containing strong branches of calcspar, sulphur, blende, &c. The stope in the back of the 45 east has somewhat improved in value and as well in length of ore ground. The western stope is without change. The lode in the 25 driving east keeps its usual direction, and still produces patches of lead ore.

D'ERESBY CONSOLS.—J. Roberts, Wm. Sandoe, Sept. 4: Setting Report: Gorse heading set to two men, at 12*l.* per fathom; the lode here is still without change, pinched small by a hard bar of ground.—Owen's Lode: the end refused at the price offered; the lode, however, is looking a little better than when last reported. In the east and west lode, driving towards Cobbler's lode, the end is set to four men, at 15*l.* per fathom; the lode is about 1 ft. wide, composed of quartz and carbonate of lime, and letting out water very freely—a very kindly lode.

D'ERESBY MOUNTAIN.—John Roberts, William Sandoe, Sept. 4: Setting Report: No. 1 is set to two men, at 5*l.* 10s. per fathom; since our last report the end has improved. In the bottom of the end there is a branch of solid lead come in 4 in. wide. No. 3 end is set to two men, at 15*l.* per fathom; the lode, although since we reported last has been poor, to-day is looking better. In No. 4 the lode is very much the same in the stope as when we last reported on it. We may say that we have taken the men for a day or two to assist in getting the reservoir ready in time for the starting the machinery, which is all getting very forward. In No. 5 we have got in by spilling about 6 or 7 yards from the No. 3 shaft; we have no idea how far we shall have to spill, but we hope that it will be no great distance.

DENBIGHSHIRE CONSOLIDATED.—R. Prince, A. Francis, Sept. 4: Respecting our 112 level east, we are pleased to be able to report that this end of our workings is looking more promising than it has done for many months. As reported on Thursday last, the lode is composed of shale, spar, and a light-coloured limestone—in fact, similar ground to that met with in the upper workings where the ore was found. We are daily expecting to cut into a run of ore. The appearance of our 112 level west is also very encouraging. We have succeeded in reaching one wall of the lode in the 66 west, and we are now driving in ground that should prove very remunerative to the company in the future. Our prospects we consider are very good, and leadstuff is being got towards another sampling.

DERWENT.—John Morpeth, Sept. 3: We have no change worthy of special mention since the date of last report.—Jeffries Shaft, Middle Vein: The 86 east and the 93 west are both without change. The vein in the former level, which is being stripped down 8 fms. back from present end, yields 24 cwts. of ore per fm., and the respective worth of the bargains over the same level is 24, 13, 14, 20, 38, and 20 cwts. ore per fathom; average width of vein nearly 6 ft. The stopes in the back of the latter level yield 6, 10, 15, 15, and 11 cwts. of ore per fathom respectively; average width of vein 4 ft.—Sun Vein: This vein in the stope over the 70, west of shaft, yields 9 cwts. of ore per fathom; vein 3 ft. wide. The 70, east of shaft, yields 14 cwts. per fathom; vein 4 ft. wide. The stopes in the back produce 14 cwts. of ore per fathom; vein 3 ft. wide. The stope at the 40 is finished, and we can now start the 40 eastwards upon either the Middle or Sun veins, with a view of further developing these veins in the grit sills, whenever it suits you to authorise it.—Westgarth's Shaft, Middle Vein: The 93 east was driven last month 5 fms., and the 93, east of Jeffries, 3 fms. 1 ft. 9 in., thus reducing the distance between those two ends to 25 fms. In this level (the 93 east) we have a good lode. We are carrying a little of the orey part in driving, which yields 15 cwts. ore per fathom, and how much is off we cannot wait to prove. The stopes over the 74 yield 13 and 16 cwts. ore respectively per fathom: vein about 3 ft. wide. Drawing and dressing at full work.

DEVON CONSOLS.—Isaac Richards, Sept. 5: Wheal Emma: New Shaft, New South Lode: In the new shaft below the 190 the lode, about 2 ft. of which on the north side is being carried, is composed of capel, quartz, peach, and small quantity of mundic and copper. The more productive part of the lode is left standing to the south for the present to facilitate progress in sinking. In the 190 east the lode, 5 ft. of which being carried, is composed of capel, quartz, peach, prian, a small quantity of good quality copper ore, and 8 tons of mundic per fm. In the 190 west the lode continues of large size, a portion of which 6 ft. wide being carried is worth 7 tons of copper ore, or 20*l.*, and 7 tons mundic per fathom. In Floyd's winze in the bottom of the 175 east the lode, 5 ft. of which being carried, is for the length of winze (9 ft.) worth 5 tons of copper ore, or 12*l.*, and 5 tons of mundic per fathom. In the 175 west the lode is 4 ft. wide, and worth 3 tons of copper ore, or 9*l.*, and 3 tons of mundic per fathom. In Hockaday's winze in the bottom of the 175 west the lode is worth for the length of winze (9 ft.) 3 tons of copper ore, or 9*l.*, and 3 tons of mundic per fathom. In the 110 east on the south part of the lode the lode is 3 ft. wide, composed of capel, quartz, some good quality copper, and mundic; worth 4 tons per fathom. The cutting of bob-plat below the 90 is completed, and the men are now engaged in the necessary work connected with fixing the angle bob at this point. There is now alteration at any of the other points to call for remark since last report.

DUBBY SYKE.—W. Tallentire, Aug. 30: There is no important change to notice in the mine this week. The stope is producing saving work. We have taken down another stope about 3 fms. in length, and another will be started with on Monday, which, in all probability, will yield more lead ore.

EAST CARADON.—James Kellow, Sept. 4: During the past month Williams' shaft has been sunk 4 ft., leaving 2 ft. 6 in more to sink to complete the contract; the ground is without alteration. The cross cut in the 150 has been driven north 1 fm. 3 ft. 6 in., and holed to Williams' shaft; it will take a few days to square the ground; when completed we shall resume the drivage west on the caunter lode at this level. The stope in back of the 90, by two men, is yielding 1 ton of ore per fathom. We have three tribute pitches, by eight men—two at 15s. and the other at 13s. 4d. in 1*l.*

EAST CHIVERTON.—R. Southey, Sept. 5: Since my last we have driven the 74, west of engine-shaft, about 4 fms.; the lode still continues to look very well, and worth at the present time fully ½ ton of lead per fathom; the end driving at 4*l.* per fathom. I am pleased to say this is the longest and best run of ore ground yet seen in the mine. We are dressing the stuff as it is risen from the end, and not stoping, so that a parcel of lead from the level driving will be dressed alone in order that a correct estimate may be arrived at as to its value, which, so far as can be seen, compares very favourably with the valuations of those who have inspected the mine. The ground in the 64 cross-cut is still hard and spare for driving, more so than I expected, hence the delay in cutting the lode; driving by four men, at 15*l.* per fathom.

EAST VAN.—W. Williams, Sept. 5: We are driving the cross-cut with full dispatch, and are having a little lead, but not sufficient to value. We have 18 ft. more to drive before we are thoroughly through the lode.

EAST WHEAL LOVELL.—Richard Quentrall, Sept. 4: Tutwork: Since my last report we have driven through a small branch of spar in the 80 cross-cut north, but the water is still coming out of the end, and we are driving it as fast as possible by six men, at 7*l.* per fathom. In the south ground the lode in the south shaft is large, and contains a little more tin. The lode in the north shaft has been a little disordered during this week, but I think it is only temporary.

GAWTON COPPER.—G. Rowe, G. Rowe, jun., Aug. 31: We have cut into the north part of the lode some short distance at the 117 east, where we find good stones of ore. We purpose to continue the drivage some 5 fms. further east before cross cutting through the different parts of the lode, which we think will be found large and productive. The lode in the winze and stope below the 105 is worth 25*l.* per fathom. The lode in the rise going up in the back of the 105 is worth 12*l.* per fathom. The lode in the winze sinking below the 95 is worth 12*l.* per fathom. All other points of operation are without change. Our last samplings of ore, weighed off yesterday, 159 tons 12 cwts.

GLASGOW CARADON CONSOLS.—William Taylor, W. J. Taylor, Sept. 3: There is no change in the sinking of Elliott's shaft to notice. In the 90 east the lode and ground is improving, although not yet of much value, but we expect it further to improve shortly. In the 90 west cross-cut north we have cut another branch with ore, but are still pushing on the cross-cut towards the main lode. The rise in the back of this level is not looking so well; we expect we are near the top of the ore on this part of the lode. The winze west in the bottom of the 78 is worth from 8*l.* to 10*l.* per fathom. We have commenced a winze east to come down on the 90; lode worth 15*l.* per fathom. No change to notice at any other point. The stopes and pitches are about the same value as last reported; on the whole, looking very well. The quantity of ore for the next sale is computed 200 tons, which will be sold on the 19th instant.

GLENROY.—R. Rowe, Sept. 3: I have now returned from the mine; there is no particular change in the shaft to notice. The sinking is going on well, and the lode keeps to about the same size, from 4 to 5 ft. wide, and in the quartz part we see a little lead and blende.

GORSEDD AND MERLLYN.—Sept. 5: In the east level on the new lode we are not working at present—a good course of ore is here. In the driving west the lode is nearly 2 ft. wide, and looks very promising. The cross-cuts from the bottom of the shaft are proceeding satisfactorily, and we expect soon to reach the lode. We have sold since my last 20 tons of lead at 11*l.* 2s. per ton, and about 30 tons of blende at 3*l.* 6s. 6d. per ton.

GREAT HOLWAY.—Sept. 5: Roskell's shaftmen are busy clearing for foundations for the new machinery, which we are very pleased to note has been procured on favourable terms; when erected we shall have power enough to open up our extensive property, and feel confident that we shall be able to give in the future splendid returns of both lead and blende.—Garden Shaft: We are nearly through here. Some nice ore has been got from Partridge working.

GREAT RETALLACK.—J. Harris, Aug. 31: We have not yet reached the lode in the cross-cut from the boundary shaft, but the cross-cut has passed through, and is in a beautiful channel of killas for the past 2 fms., which is highly mineralised with mundic, peach, prian, &c., leading us to think we are near the lode.

GREEN HURTH.—W. Vipond, August 30: The stope below adit has been poor this week, not yielding more than 8 cwts. of ore per fathom. The working on the east and west vein has improved considerably since yesterday; it will yield at present 12 or 14 cwts. of ore per fathom, but it does not appear as if it would be continuous for any length of time; the vein looks as if it will be bunchy, or the ore lying in pockets. The branch from Fire Away is yielding 6 cwts. of ore per fm. The sump is going on pretty fairly; it is now down about 3 ft. No. 3 cross vein has not yielded anything this week; both the plan and the sound when the men are at work show that this end is nearly through. In Jacky Quarry level the vein shows no appearance yet in the hazel or plate, where it is at least 3 or 4 ft. in width in the limestone above; it has probably slipped further east at the bottom of the limestone. We have turned the level now in the direction in which the vein or brauch is going in the limestone above us; it is set to drive at 46s. per fm.

HARWOOD.—W. Tallentire, Aug. 30: Herdship Level: The south end has been poorer this last fathom or two, but is looking better to-day, with a good deal of lead ore in view. The string referred to on the 16th instant has been carried on with the vein about 2 fms.; it is now taking its proper course off on the east side, at this point we shall set the cross-cut to prove the vein its full width. We have sent 14 bings of lead ore to market this week.

HINGSTON DOWN CONSOLS.—Thomas Richards, Sept. 5: Bailey's Shaft: In the 172 east the lode is composed of capel, quartz, mundic, and copper ore to the value of 5*l.* per fathom. In the stope in the bottom of the level the lode is large, and will produce 15*l.* worth of ore per fathom. In the stope in the back of the 172 east the lode is worth 25*l.* per fathom. In the 160, west of Nicholls' winze, there is no change. In the tributers' sink in the bottom of the 160 the lode is of great promise, and is worth 10*l.* per fathom. In the tributers' stope and pitch in the back of the 110 fm. level the prospects are favourable. In the deep adit the ground is easier, and fair progress is being made. The sampling on Friday last was 141 tons.

LADYWELL.—A. Waters, Sept. 5: No change has taken place in any point in the mine since my report of last week. We ore getting on well towards our next sampling.

MARKE VALLEY.—William George, James Stenlake, Sept. 5: The lode in the 90 west continues large and very promising; the ground has slightly improved for driving since our setting report. The 30 west is without alteration. The lode in the 10 west is 2 ft. wide, yielding 2½ tons of ore per fathom. No other change to notice throughout the mine. Our computation of ores for sale on the 19th inst. is 345 tons.

MELLANEAR.—John Gilbert, Sept. 4: The lode in the 40, west of No. 2 rise, west of Gundry's shaft, is 4 ft. wide, and worth 4 tons of ore per fathom. The lode in the rise in the back of this level is 3 ft. wide, and worth 2½ tons of ore per fathom. The lode in the 50, west of shaft, is 3 ft. wide, and worth 1½ ton of ore per fathom. The lode in the 60, west of shaft, is 4½ ft. wide, and worth 4 tons of ore per fathom, and the ground is very favourable for driving. The lode in the rise in the back of this level is still worth 2½ tons of ore per fathom. The lode in the winze in the bottom of this level is 4 ft. wide, and worth 3 tons per fathom. In the 70, west of shaft, the lode is 5 ft. wide, and worth 2½ tons of ore per fm., and looking very promising for an improvement. The ground was never so good before for driving, and I calculate the four men will drive over 7 fms. this month. The lode in the winze in bottom of this level is 4 ft. wide, and worth 2 tons per fathom. The lode in the 80, west of shaft, is 5 ft. wide, and worth 1½ ton of ore per fathom, and is also producing a good deal of blende, which we consider to be an encouraging feature for an improvement for copper ore. The stope in the back of this level, east of shaft, is worth 6 tons of ore per fathom. The lode in the stope in bottom of this level is also worth 6 tons of ore per fathom, very much better than our average quantity. The lode in the 90 fm. level, west of shaft, is producing good stones of copper ore, and getting spotted with lead and blende. The lode in the 100, east of shaft, is 5 ft. wide, and worth 1 ton of ore per fathom. The lode is getting more promising and is letting out an increased quantity of water, which we think is draining from the level above. The lode in the 100, west of the skip-shaft, is producing good stones of copper ore. There is no change to notice in the ground in the 30 cross-cut, south of Gundry's. I think the men are going on all right to have 10 fms. again this month. All our other bargains are quite as good as last reported.

MINERAL CORPORATION OF GREAT BRITAIN—HAFNA MINE.—W. Bennett, Sept. 3: No. 1 Adit: The lode in the end driving west is looking well, and worth 1 ton of lead to the fathom. A stope in the back of No. 1 is worth 1 ton of lead to the fathom.—No. 2 Adit: The men are making good progress in clearing the adit. The rise in the back of No. 3 level is still looking well, and worth 1 ton of lead per fathom.—No. 4 Level: The men are making fair progress in driving towards the lode.

MONYDD GORDDU.—J. G. Green, Sept. 4: All machinery working well, and we have a few tons of ore dressed; we find it necessary, however, to complete the roof, to prevent the water getting on belting, as when wet it slips. This will be completed by to-morrow, when we can work to full capacity. There is no change to notice in our underground bargains, excepting that we have tapped a fresh feeder of water in the 34 cross-cut.

MORFA DU.—T. Mitchell, Sept. 5: The lode in the botiom end continues much the same as stated in the setting report on the 2nd inst. We cut an extra feed of water yesterday, which may be considered a favourable indication. The men are getting on very well in clearing up the winze.

NEW SOUTH MERLLYN.—R Rowlands, Sept. 5: The sump is going down well, the appearances are good, and we are getting more stuff for the dressing-floor.

NORTH LAXEY.—John Sowden, Sept. 3: In the 84 end the lode is getting very strong; now 3 ft. wide, composed of rock, spar, and lead. The end has passed through a lode worth about 10 cwts. of lead per fathom, but at present is poor, caused by a cross branch passing through it. We shall get clear of this in a few days, and expect to see an improvement from the character of the lode. The stope in the roof of the 84 is worth 30 cwts. of lead per fathom.

NORTH TRESKERBY.—John Nancarrow, Sept. 5: Doctor's engine shaft is down to the 24; there are 2 fathoms driven east and west, and we are now cutting south into the lode, but only yet see the north part of it, which contains good ore and strong mundic. The porous part of the lode, which contains the ore in the upper levels, is yet before us, and we are pushing on towards it as fast as possible. The lode in the 12 east is about 6 ft. wide, contains plenty of mundic, and yields ore to save. The lode in the 12 west is softer in its character, has a better appearance than for some time, and yields 1 ton of ore per fathom. The north lode at East Downs looks very promising as we drive westward, and yields some very good ore. The tribute department is rather improved.

PARYS MOUNTAIN.—T. Mitchell, Sept. 5: We have just met with another branch in the 90 cross-cut south about 1 ft. wide, consisting of a mixture of sulphur and copper ore. This is the strongest looking branch that we have seen for a long time; ground rather stiff for driving, but looking kindly.

PATELEY BRIDGE.—Charles Williams, Sept. 5: The 30 east, on Rake vein, still continues in a fine course of lead ore; the vein in the end is 8 ft. wide, consisting of quartz, gossan, blende, and lead ore, producing of the latter 8 tons per fathom; set for the month to six men, at 100s. per fathom. The vein in the stope in the back of this level is 6 ft. wide, and worth 2 tons of lead ore per fathom; set for the month to four men, at 60s. per fathom. The vein in No. 2 stope in back of ditto, 20 fms. east of engine shaft, is 4 ft. wide, and worth 16 cwts. of lead ore per fathom; set for the month to six men, at 40s. per bing, or 5*l.* per ton of dressed ore. The tribute pitch in the 20 east, on Rake vein, is worth 1 ton of lead ore per fathom; set for the month to two men, at 5*l.* 12s. 6d. per ton of dressed ore. The tribute pitch on Fielding's vein in the 20 north-west is worth 1 ton of lead ore per fathom; set for the month to two men, at 5*l.* 12s. 6d. per ton of dressed ore. The tribute pitch on string in the 20 west is worth 15 cwts. of lead ore per fathom; set for the month to four men, at 5*l.* 12s. 6d. per ton of dressed ore. The Rake vein in the 20 east is 6 ft. wide, and producing good stones of ore; set for the month to four men, at 100s. per fathom. The Lumb vein in the 20 west is 4 ft. wide, and worth 10 cwts. of lead ore per fathom; set to two men, for the month, at 30s. per fathom and 3*l.* 15s. per ton of dressed ore.—Pringap: The vein in this level is 6 ft. wide, and containing a mixture of ore throughout—a very promising end; set for the month to two or four men, at 6*l.* per fathom. Produce for August, 50 tons of lead ore, worth 500*l.*, at a cost of about 380*l.* Lead ore on hand—dressed, 60 tons; ditto calcined, 32 tons; pig-lead, 10 tons.

PENHALLS.—S. Bennetts, P. Vian, Aug. 31: The lode in the 70 east end continues to produce some low quality tinstuff, worth 4*l.* to 5*l.* per fathom. The same section of the lode in the west end is large, and worth 12*l.* to 15*l.* per fathom. The 60 east end has somewhat improved, worth 7*l.* per fm. In the 55 east, on another section of the lode, the south part has just been cut into, and found worth 8*l.* to 10*l.* per fathom. The 48 west is worth 7*l.* per fathom. The various other points of operation are without much change worthy of notice.

PENNANT.—Sept. 5: The 113 east is opening into a heavy mixture of mineral, and letting out a quantity of water. The 80 west is in a fine compact lode, and there is an increase of carbonate of barytes with the lead. I have no doubt we shall open up large quantities of mineral from this end of the mine. The stopes continue to do well, and the dressing of stuff is proceeding as for some time past. The machinery is in capital order.

ROMAN GRAVELS.—A. Waters, Sept. 5: The 110 fm. level, north of new engine-shaft, is in a lode worth 15 cwts. of lead ore per fathom. The 110, south of shaft, is in a lode 4 to 5 ft. wide; worth 1½ ton per fathom. The 95, south of shaft, is in a nice-looking lode, 6 ft. wide; worth 3½ tons per fathom. The 80 south is in a hard, tight lode, 5 ft. wide; worth 1½ ton per fathom. The 65 south is worth 1 ton per fathom, and from the present appearance of the lode we may expect a great improvement here shortly. The 40 south is worth about 10 cwts. per fathom. The stopes and other points in the mine are without recent change.

ROOKHOPE.—T. Davidson, Sept. 5: Adit Level: In cross-cutting north from the rise in top of No. 11 we have not got through the vein yet. The ground is very hard, but the vein contains some nice pieces of ore; value 12 cwts. per fathom. The stoping west from the old rise, No. 12, grows a little poorer as we work in that direction. The vein takes a loop over on the north side, so that we have a considerable portion not broken into, and have some fair good ore in the stoping above; value 16 cwts. per fathom. The stoping in No. 13 is very hard, and there is no change in value from last report. The stoping over adit level roof is worth 10 cwts. per fathom.—Over the 42 Level: The stoping east from old winze, No. 4, east of low shaft, below the 25 fm. level sole, looks well for continuing; value 16 cwts. per fathom. The stoping west from the same point has hitherto not been so good; value 10 cwts. per fathom. The ground we are stoping in the south side of the vein, No. 4, is extremely hard—black limestone rider—but during this week has improved for ore; value 12 cwts. per fathom. The winze sinking in No. 3 has been holed through during the week to the 42. The next point will be to get it sheeted up, and open out vein in sides, and forward as well. The rise in No. 3, east of Gin shaft, continues very poor; not sufficient to value. The same remark will also apply to the rise in No. 7, east of Gin shaft.

SAINT PATRICK.—William Francis, Sept. 4: In the 120 yard north cross-cut the cross-course keeps its usual size, with firm wall sides, being the full width of the level, and with a good mixture of clay and soft spar on the west side. Good progress is being made here and also in the 60 cross-cut in the chert, which continues very kindly, in the same good bearing measures.

SOUTH CAMBRIAN.—Absalom Francis, Sept. 2: The men are making good progress in stripping down the deep adit level to a sufficient size to lay down permanent railway, and also with laying the railroad. At the end of this week they will be breaking down good blende ore standing by the sides and in the roof of the level, and we have prepared a turn out from the main road for a deposit for the blende ore breaking, and shall now be stocking a large amount of it in readiness for the machinery when erected. The deep adit driving east—at least the tract carried 5 ft. wide—is producing rich blende in paying quantities, and leaving very large reserves for stoping; in fact, the mine is opening out even better than I anticipated. We are assisting to make the road in good order and condition from where it turns off from the junction of the Cambrian road to the Eagle Brook Mine. The bottom is an excellent one, and when it is completed it will be lasting, durable, and firm.

SOUTH CONDURROW.—Wm. Rich, Wm. Williams, H. Abraham, Sept. 4: The lode in the 30 fm. level cross-cut north is cut through, and the men set to drive east on its course. The 40 end east is worth 6*l.* per fathom. The 40 west is worth 5*l.* per fathom. The rise in the back of the 40, near the cross course, is worth 6*l.* per fathom. The 50 end, east of King's, is worth 8*l.* per fathom. The winze below the 50 is worth 10*l.* per fathom.. The 50, west of middle cross-cut, is worth 7*l.* per fathom. The rise in the back of the 50 west is worth 35*l.* per fm. The 50 end, driving west towards the Plantation shaft, is worth 6*l.* per fathom. The 50 end, east of this shaft, is worth 12*l.* per fathom. The 50 west is worth 12*l.* per fathom. We have put in 80 fathoms of double skip-road in the Plantation shaft from the 50 to surface, and are now engaged fixing double skip-road below the 50. The 70 end west yields low quality tinstone. The rise in the back of the 70 is worth 9*l.* per fathom. The 80 end carries a little tin. The rise in the back of this level is worth 18*l.* per fathom. The 93 end west is worth 12*l.* per fathom. The rise in the back of the 93 east is worth 20*l.* per fathom.

SOUTH DARREN.—Henry James, Sept. 5: The cutting of lodge and ground for tramroad, &c., at the 100 is being pushed on as fast as possible, and we are making fair progress. The 100 west is again clear of stuff, and the men are going on with the driving, which is rather stiff for progress. We expect here shortly to enter the run of rich ore ground wrought upon in the 90. The winze sinking below the 90 is down about 10 fathoms, and will soon be deep enough for driving the 100; the lode here is looking very good, and worth for lead ore 40*l.* per fm. The lode in the 90 end is worth about 35*l.* per fathom for lead and copper ores. The 80 winze men have now commenced stripping down the lode in the side of the 90, and the end men have resumed the driving. No. 1 stope in back is worth 36*l.* per fathom. No. 2 stope is suspended, it being almost through to the 80, and the men are put to stope east from 80 winze. The two stopes in the 80 fm. level are worth together 26*l.* per fathom. We shall sample on Saturday 40 tons rich silver-lead ore.

SOUTH DE ERESBY MOUNTAIN.—Thomas Bennetts, Sept. 5: No. 1 lode in No. 1 adit in the north end is at present disordered by a slide.—No. 2 Lode: We have driven the cross-cut through the lode 4 fms. 4 ft. 6 in., and have not as yet reached the adjoining wall of the lode. We have to day broken some good lumps of lead from the end, and I am certain from the good indications the lode presents that large quantities of lead will be found at the next deeper level.—New Trial Shaft: The lode is still very wide, producing some good lead and blende. I am glad to inform you that we have made a good discovery in the end driving north on No. 1 lode. I have-to-day broken some of the best lumps of lead that I have ever seen in the mine. I hope to write more fully on this valuable discovery in the course of a day or so.

SOUTH MOLTON CONSOLS.—T. Harris, T. May, Sept. 5: The ground in the adit cross cut is more favourable than it has been for the past few fathoms driving, and we are hoping now to make more speed in our driving than we have; the killas is of a very favourable character for the production of lead.

SOUTH ROMAN GRAVELS.—Sept. 4: I forward you a plan of the Shelve portion of the mine, also a section of Sawpit lode, and a small box of lead ore raised out of the winze sinking below deep adit on Sawpit lode. The position of said winze you will observe at the 40 fm. level on the plan marked ×. The winze is also shown in the section near the south end at the 40 or bottom level. The solid lumps of lead ore are out of the soft portion of lode, which is, as stated in a former report, about 3 ft. wide. The mixture is out of the spar course, which in the winze is quite 4 ft. wide, and in other parts of the lode more. We have fixed windlass and sollar, and deepened the winze about 2 ft., making in all 2 fms. 1 ft. Last night and this morning we met with some nice lumps of solid ore, similar to the largest sent. In clearing out the level south of shaft, and examining the lode all along the bottom, together with the prospects in the winze now in course of sinking, I feel justified in strongly recommending you to get a small portable engine and push down the winze with all speed possible; I believe there is a chance of success in this lode. A feature in the bottom level worthy of remark is that carbonate of lime has taken the place of barytes, which was the case in the Snailbeach and Tankerville lodes. Provided we had the engine we could sink the winze for 6*l.* or 7*l.* per fathom.

SOUTH TOLCARNE.—W. Rich, J. Knotwell, Sept. 4: The lode in the 34 end west is opening out wider, and yields a little tin and copper. The lode in the 36 east is smaller than usual, but it looks as if it will increase in size as we extend the level east.

TANKERVILLE.—Arthur Waters, Sept. 5: The 206, east of shaft cross-cut, is in a lode 6 ft. wide, worth 2 tons of lead ore per fathom. The same level, west of shaft cross-cut, is in a lode 4½ ft. wide, worth 1½ ton per fathom. The lode in the drivage from Hooton's winze west, towards level, coming from shaft, is 6 to 7 ft. wide, worth 2 tons per fathom. The lode in the end going east from winze is worth 1½ ton per fathom, and is improving as we go forward. The lode in the stope in the back of the 206, east of shaft cross cut, is worth 1½ ton per fm. No. 2 winze, in the 192 east, is in a lode worth 1½ ton per fathom; about 2½ fms. further sinking will put this winze down the required depth. All other points in the mine are without change. We have to-day sold 100 tons of lead ore for 96*l.*

TAN-YR-ALT.—J. Davies, Sept. 7: The new lode in the 12 fm. level is improving, and is now worth 15 cwts. of lead to the fathom. The end in the 21 is narrow, but appears to be opening out as we near the dip of the shoot of ore in the stope. The stope is worth 3 tons of ore to the cubic fathom. We have started the dressing, and shall have a 10 ton parcel ready in a fortnight.

TEESDALE.—John Slack, Aug. 29: West End Forebreast, Holmes's Level: This working has still further improved since my last report, and looks stronger and better as it gets more into the hill. Good strong lead ore has set up into the roof, which it has never done before since we commenced; it will afford excellent stoping when it comes to be worked. We are keeping the forehead going with four men double shift.—North End, Holmes's Level: The forehead in this working is very poor, much worse than it has ever been. We seem to be in the middle of one of the twitches which this vein is so subject to. I do not, however, think any worse of the future of this working, and in all probability it will be better than ever when we get through it.—North End Stope: We have not got much broken into the end of this stope yet, owing to the time occupied in timbering the junction, putting in a new hopper, &c. It will work rapidly when fairly set going.—Surface Work: The men at the dressings are occupied in finishing up the chats and slime, the remains of the two last dressings. They will commence the bouse again on Tuesday or Wednesday.

TEMPLE.—Sept. 4: No. 1 level, driving west, by six men: the lode is very wide, containing much spar, with here and there occasional spots of lead. No. 2 level, driving west, by six men; the lode presents an excellent appearance, producing we may safely say 2 tons of lead ore per fathom. No. 3 level, driving west, by six men; the lode is much the same as when last reported, producing 1 ton of lead ore per fathom. The winze sinking by six men to communicate No. 3 with No. 2 level; the lodge having been cut the sinking is being carried by the side of the lode; the object of this is to ventilate the mine, and to enable the ore to be taken away with dispatch as soon as the dressing machinery is ready. Wheel pit being completed the engineers are engaged fixing the water-wheel. The various operations at surface not otherwise alluded to are progressing satisfactorily.

TOLGUS CONSOLS.—W. C. Vivian, Sept 5: The 40 cross-cut is now cutting through a formation consisting for the greater part of blende, with a small proportion of copper ore disseminated throughout it. I should judge this to be the south part of the lode. I trust we shall find the north part, when we must soon reach a mass of copper ore.

TYN-Y FRON.—E. Jones, Sept. 3: We are continuing the cross-cut north of the adit east, and are now in 15 ft. We have not yet reached the north lode, which when intersected will be driven on eastward into the hill, where a back or cover of about 100 fathoms will be gained, and will, no doubt, lay open a very great extent of profitable ore ground for stoping, independent of the rich courses of ore gone down in the bottom of the adit both east and west.

WEST CHIVERTON.—R. Southey, Wm. Roberts, J. Moyle, Sept. 5: The lode in the 150, east of Batters' shaft, on south lode, is 2½ ft. wide, producing good stones of lead ore occasionally—a very promising looking lode, and kindly for an early improvement. In the 140, west of Hawke's shaft, on the north lode, the lode is 4 ft. wide, worth for lead and blende 10*l.* per fathom. In the 140, east of Hawke's shaft, on south lode, the lode is 3 ft. wide, worth for lead 5*l.* per fathom. In the 138, east of Batters' shaft, on the north lode, the lode is 4 ft. wide, worth for lead and blende 15*l.* per fathom. In the 160, at Batters' engine-shaft, the various bargains are much the same as when last reported. A slight breakage to our engine and pitwork has somewhat impeded our operations in the bottom of the mine; the necessary repairs are now completed, and we hope in a few days to be able to resume these workings.

WEST CWMYSTWITH.—J. Davis, Aug. 31: The winze is down 10 fms. 4 ft., the 4 ft. being reserved for water lodge; ladders and strong stage over water lodge have been fixed, and the men have commenced driving westward on the course of the lode; the lode at the bottom of the winze is large and well defined, and I hope within a fathom or two to intersect the good course of ore gone through above. The cross-cut to No. 3 is extended nearly 20 fathoms, but has not intersected anything of much importance; the main part of the lode (No. 3) must, however, be very near the present forebreast, and Fleming's lode is still further north of it. At Bog adit we have not intersected the lode, the ground being very hard again. At Penshaft I am pleased to inform you we have a very promising lode. Our staff here owing to the state of the ventilation has been necessarily limited, and we have only driven a little over 2 fathoms. We have had from the commencement some fine cubes of ore, and in the present forebreast there is a very nice rib of solid lead ore, and another of blende, of which I send you specimens. At a small cost the ventilation here can be improved, so as to enable us to carry on the trial with greater vigour. At the intermediate level we are

with a soft joint running nearly at right angles with our level; we have gone through this, and have got the ore again beyond it.

WEST GODOLPHIN.—J. Pope, Sept. 4: The 70, driving east, on Wilson's lode, is not looking so well as last reported. The other places are without change to notice. I will send a full report in time for the committee meeting on Tuesday next.

WEST ROSKEAR.—H. Stephens, W. Bennetts, Sept. 5: The lode in the 24, driving west, is much the same as last reported. The lode in the 12, driving west, is improved since our last, and bids fair for further improvement; a very promising lode, and will yield at this time more than 2 tons of copper ore per fathom. We shall have everything ready to drop below the 24 by Monday next; at the same time we shall resume the sinking of both Stephens' and Lanyon's shafts. We have sampled a parcel of silver-lead to-day.

WEST TANKERVILLE.—Arthur Waters, Sept. 5: The 86, south of boundary shaft, is in a lode 5 ft. wide, worth quite 1½ ton per fathom. The three stopes in the back of this level, south of winze, are worth together 2½ tons of lead ore per fathom. The two stopes in the back of the 75, south of shaft, are worth together 2 tons per fathom. Other points in the mine without any recent change.

WEST VOR.—S. Harris, Sept. 4: The rise above the adit level against the new shaft is up 4 ft.; the lode is 2 ft. wide, composed of prian, mundic, and a little tin, but not sufficient to value at the present low price, still it looks very kindly considering the depth. In the shaft sinking below surface, on the course of the lode, we are making fair progress. The lode in the present bottom of the shaft is about the same size and character as in the rise below; I calculate it will take about three months to effect a communication, after which we shall be in a position to explore the two very promising lodes we have in the adit cross cut. I may say this is the only point these lodes have been seen west of the old Vor Mine, and are the same lodes that yielded so much tin in that sett, and this being the same stratum of ground I have every confidence in finding a productive mine.

WEST WHEAL TOLGUS.—Sept. 4: The ground in Taylor's shaft is without alteration since last report. The lode in the 145, west of the third cross-cut, is 4 ft. wide yielding 4 tons of ore per fathom. The lode in the same level, west of No. 2 cross-cut, will yield 3 tons of ore per fathom. Since the men hoied the rise in the back of the 145, between Nos. 1 and 2 cross-cuts, they have been employed in driving east of No. 1 cross-cut, or we may say stoping it back by the side of the level on the north part. We are pleased to say it will yield 4 tons of ore per fm. The stopes in the back of the 145, and also below the 135, are without alteration. The lode in No. 3 winze, below the 135, is yielding 9 tons of ore per fm.; winze down about 20 ft. below the level, a strong fine lode. The lode in the 135 end west is a little harder than it has been hitherto, composed of spar, with a little ore. The lode in the 125 end west is 18 in. wide, poor.—Richard's Shaft: There is no alteration to notice; the whole of the shaft is in killas, and the men are making fair progress in sinking. There is no alteration in either of the ends at this shaft. In answer to your enquiry about the smoke or gas in the sump after the holes are blasted, we are glad in being able to say there is no inconvenience whatever from it. In five minutes after the blasting of the holes the men can go down in the shaft to work. The compressor keeps the place full of air—a fresh breeze.

WHEAL CREBOR.—John Andrews, Sept. 3: There is no change in the 120 east, nor is there any change in the stopes, as no lode has been taken down in either of them for the week. The lode in the 108 east continues small and poor. In the 72 east the lode appears to be getting a little more defined as it leaves the influence of the cross-course. The lode in the 48 east is 18 in. wide, and yields a little mundic, but is poor for copper. We continue to make fair progress in sinking the new shaft.

WHEAL GRENVILLE.—T. Hodge, Sept. 4: Goold's shaft is below the 150 fm. level; fms. 4 ft, going down in granite between the two lodes. The 140 east end is worth 11*l.* per fathom. The 140 west end is worth 6*l.* per fathom. The 160 east end is worth 6*l.* per fathom. The 150 east produces low-price tinstone. The winze sinking below the said level is worth 11*l.* per fathom. The 140, east of the western shaft, is worth 8*l.* per fathom, and likely to improve. The 130 west end is worth 7*l.* per fathom. No other change worthy of note.

WHEAL KITTY (St. Agnes).—S. Davey, R. Harris, Aug. 31: There is no change in either of the points worthy of special remark; the value in the aggregate the same as sent last week.

WHEAL PEEVOR.—W. T. White, J. Pryor, Aug. 31: Setting Report: The 80, to drive west of shaft, by six men, for the month, at 6*l.* per fathom; the lode in the end has greatly improved during the past month, and is now worth 20*l.* per fathom. The 70, to drive west, by four men, for the month, at 7*l.* per fathom; lode worth 15*l.* per fathom. The rise in the back of the 70 west, by four men, for the month, at 7*l.* 10s. per fathom; lode worth 16*l.* per fathom. Two stopes in the back of this level, by eight men, at 2*l.* 10s. per cubic fathom; lode worth in each 12*l.* per fathom. The 60, to drive west, by two men, for the month, at 6*l* per fathom; lode worth 15*l.* per fathom. The rise in the back of the 60 west, by four men, at 7*l.* 15s. per fathom; lode worth 14*l.* per fathom. The 48, to drive west, by four men, for the month, at 6*l.* per fathom; lode worth 12*l.* per fathom. Two stopes in the back of this level, by eight men, at 2*l.* 5s. per cubic fathom; lode worth respectively 15*l.* per fathom. The 36, to drive west by four men, for the month, at 5*l.* 15s. per fathom; lode worth 15*l.* per fathom. The rise in the back of the 36 west, by four men, at 4*l.* 15s. per fathom; lode worth 10*l.* per fathom. Two stopes in the back of this level, by eight men, at 2*l.* 15s. per fathom; lode worth in each 11*l.* per fathom. The 36, to drive east of main rise, by two men, for the month, at 6*l.* 5s per fm.; lode worth 9*l.* per fathom The main rise is now up above the 36 fm. level 11½ fms, and to-day we set the 26 to drive west of same at 5*l.* per fm.; lode worth 10*l.* per fathom. We also set a cross-cut to drive south at the 36 to four men, at 7*l.* per fathom, to intersect the south lode just at right angles with the engine-shaft. The deep adit end to drive west of cross-cut on the south lode by two men, at 5*l.* per fathom; lode improving, worth 9*l.* per fathom. We have completed the cutting of bob-pit at the 36, and the shaftmen are now cutting ground for bearers, &c., We have also four men cutting trip-plat at the 70. Our tribute pitches are producing fair quantities of tin, the fresh setting of which will take place next month. The mine we are pleased to say continues to return large quantities of tin, and as is seen from the foregoing report continues to open up exceedingly well.

WHEAL PRUSSIA.—W. Tregay, Sept. 4: Tregay Shaft: The lode here will produce 1½ ton of black tin per fathom. All other points looking well. We have sold from this mine during the past month 24 ton 11 cwts. 1 qr. 14 lbs. of black tin for the sum of 895*l.* 10s. 5d.

WHEAL UNY.—William Rich, M. Rogers, Sept. 2: The rise in the back of the 150, west of incline shaft, has been communicated with the 130; this has given good ventilation, and opened out the lode for stoping. The 150 end west carries a little tin. The 160 west is worth 8*l.* per fathom The 160 east is unproductive. We hope to complete the skip-road in Hind's shaft to the 172 by the end of the week. The 150, east of King's, is worth 6*l.* per fathom. The rise in the back of this level is worth 10*l.* per fathom. The 140 end east is unproductive. The winze in the bottom of the 140 is worth 8*l.* per fathom.

YNYS.—Owen Morgan, Sept. 7: We have had to timber the old shaft again to make it secure, and we are now stripping the lode (from wall) which the old men left, so as to make the shaft wide enough to draw from, hold the pumps, ladders, &c. The lode is about 10 ft. wide, with a course of ore in the bottom 2 ft. thick, solid mixture throughout, the remainder worth altogether at least 5 tons per fm. of the lode. We shall have the shaft square to the bottom by the end of the week. when we shall start to sink. Since we made the drains, &c., there is very little water,

SOUTH PATRICK MINE—MONTHLY REPORT.

Sept. 3.—At Campbell's engine-shaft we have the water in fork to the 60, and have commenced clearing the 60 east, on Pant lode; this level is nearly full of sludge, owing to the water having been in it so long. In the 50 north since my last report we have been rising in the roof in search of the great south-west lode. We have intersected an offshoot from it, but I think the main portion is below the level. In driving from the rise we have a very fine-looking lode, which is producing saving stuff for washing, and occasionally lumps of ore 10 lbs. in weight; from its appearance I expect it will improve. In the sump sinking below the 50 north I think we have got the main part of the great south-west lode—the same on which they worked at Parys Mine; the lode in appearance is everything that one could wish for, and contains a mixture of oxide of copper and good lumps of lead ore. I am expecting daily to have the pleasure of reporting to you our having struck into a mass of lead. In the 50, south of Rule's shafs, we are rising for the double purpose of ventilation, and to prove the cavity discovered in the 20 west; this rise is now up about 7 fathoms above the roof of the level. Hughes's shaft is being sunk below the 50 by a full complement of men; the ground is very favourable for sinking; present depth 6 fathoms. In the bottom of the shaft we have a caunter lode about 18 in. wide, of a very kindly nature, composed of carbonate of lime and clay. According to its present bearing this caunter lode will form a junction with our rich new north and south lode, about 10 fathoms south of the shaft. This point is being urged on with all possible speed, as it is most important, for we know we have lead, as our old workings from the sump left off in a rich lode of ore. I purpose sinking Hughes's shaft another 7 fathoms, and then commence driving to the ore ground. In the 20, west of Rule's shaft, we have been cross-cutting north, and have intersected a branch of the lode, and have got some nice lumps of ore from it to-day. I shall be able to see more of it in a day or two as we open east and west on its course. In the 20 east we are sinking a trial sump on the east and west lode. The lode in the bottom of the sump is about 1 ft. wide, of carbonate of lime, spotted with lead; this lode has produced large quantities of lead in shallow workings, and I fully believe that another 5 fathoms sinking will show a great improvement, as we shall by that time have got into the white limestone, which is the main-bearing stratum. The workings on the cavity in the 20 west, referred to in my last report, are temporarily suspended for want of ventilation. This will soon be remedied when the rise in the 50 south is communicated to the sump in the sole of the 20. From the above report you will see that we are doing a vast amount of work, and that our prospects of making valuable discoveries are very good, particularly in the 50 north and by the sinking of Hughes's shaft.—H. B. VERCOE.

PANT-Y-MWYN MINE, MOLD—SPECIAL REPORT.

Aug. 29.—I inspected the Pant-y-Mwyn Lead Mine on the 28th inst., accompanied by the able manager, Capt. T. Hughes, who pointed out to me everything necessary for my guidance, to enable me to arrive at a conclusion as to whether the numerous statements that have been made with respect to this valuable property were correct or not; and, fearless of contradiction by any mining engineer who may inspect the property, I first state:—The reserves of ore in the mine at the present moment discovered can be estimated to be worth at least 250,000*l.*

I descended Griffiths' shaft with the agent, and inspected the 100 yard Day level, which is about 1¼ mile in length, and found a rich course of ore at the bottom level, a cross cut to the new lode has been driven 5 yards from the hanging side of main lode to heading side of new lode, where a new course of ore has been intersected, worth at least 90*l.* per fathom. The same level driving east is intersecting strings of very rich ore, sometimes 2 ft. solid. At the 10 west a sump has been sunk on very rich ore; water at present, however, interferes with its becoming available, but when drained by the deeper level and opened up, will considerably increase present reserves. At the 15 yards level, driving east, which is the deepest point reached, rich ore has been intersected. I observe that it is a true defined vein, and not an exceptional deposit in the carboniferous, but existing in the mountain limestone that runs through this grant, similar to which I believe produced such fabulous wealth in the old Pant-y-Mwyn Mine. The underlie of the lode I calculate to be about 2 ft. per fathom. I remained about 3½ hours underground to investigate every point of operation, and can honestly affirm that, during my 40 years practical experience as a working miner in Wales, Devon, and Cornwall I have never inspected a mine so rich in present yield and future promise, and if the present hands were multiplied a monthly yield of 300 to 400 tons can be easily brought to market. But the manager thinks it advisable at present to sink, drive, and open out fresh reserves, and this I consider the wisest course to adopt with regard to the permanency of the Pant-y-Mwyn property. I saw about 170 tons of dressed lead ore in the bin, worth from 12*l.* to 15*l.* per ton, ready for market, and about 40 tons undressed; the lead being very pure fetches a high price amongst the smelters.

The pumping machinery is in good working order. The engine is kept at work night and day draining the mine. The dressing department is laid out with all the modern and approved appliances, and capable of preparing about 300 tons monthly for market. The monthly returns are now about 50 tons, gained at a cost of little over 200*l.*, and will shortly be increased to 100 tons. In conclusion, I beg to add that the reserves are rapidly augmenting, and that no practical miner can for a moment suggest that the returns are forced, or that the workings are not judiciously carried out by the present manager.—JOHN METHERELL.

THE COLORADO UNITED MINING COMPANY.

SIRS,—In accordance with your request, I have made a complete and thorough investigation of the mines in company with the superintendent, Mr. Morgan. The property belonging to the Colorado United Mining Company (Limited) is situated at Brownville, in the County of Clear Creek, State of Colorado, United States. It consists of a series of 19 mines, and covers such a large area of ground that the inspection occupied me four days. Starting at the mouth of the Union Tunnel with Mr. Morgan, I first inspected a lode situated 100 fathoms north of the entrance. This tunnel driven through hard granite at an expense of 36*l.* per fathom. The first lode intersected 100 fathoms north of the entrance. The Treasurer, or Tuscorora, now driving east, 2 fathoms in, underlying north about 3 ft. in a fathom, opening out strong, well defined, showing best at the bottom; the width of the lode 2½ ft. At the breast of the tunnel, 6 fathoms further in, the Terrible lode was intersected; the lode when cut about 3 ft. wide, showing over 7 in. of solid mineral, the assay value of which is 50*l.* to the ton for silver. The drift on this lode west, now in a distance of 25 fathoms, shows a strongly defined lode, improving at the breast; the western pioneer portion of the mine, in size varying from 1 to 4 ft, with excellent ore throughout. Starting from the tunnel I found the stope was already worked 15 fathoms long, running west, and throughout it looks fair.

I next inspected bottom of the Silver Ore shaft, 9 fms. below Union Tunnel and 7th level. Here I found the lode to look well: leader 6 in. wide, nearly solid mineral, averaging 700 ozs. silver per ton. Proceeding through the 7th level to Terrible shaft, a distance of 85 fms., we descended to the 8th level, 13½ fms. This level I found driven all the way on a good lode, a distance of 55 fms. west. Stope No. 1 from Terrible shaft: length 25 fms. west from Terrible engine shaft; backs, 13½ fms.; leader part 2 to 4 and 6 in. wide, just commenced; not rich. Stope No. 2, called by the superintendent the 8th level stope, is 30 fms. long, 13½ backs, nearly all good stoping ground. At the point of this stope the leader is from 3 in. to 10 in. wide, nearly solid, worth about 200 ozs., or 40*l.* per ton. West end of drift driving poor at present, but kindly; the mineral, though small, of very high grade; assay, 2200 ozs. per ton. Winze over the end not communicated; owing to water being in winze I could not see it. About 1 fm. from communicating, which the superintendent will raise on to connect. Level No. 5 is driven about 15 fms. east of Terrible lode, or lodes 2 to 4 in., good work; 15s. in 1*l.* on tribute. Level No. 4 nothing doing on; the bunches of ore all appear to be dipping west, and the deepest points appear the best. Ground above stoped, but a great quantity on footwalls to be stripped; stulls above full of concentrating mineral.

The Silver Ore tunnel, running to connect the Brown lode, driven north 160 fms., cut three lodes, one being driven on west about 10 fathoms, and stoped on in back for 3 fathoms high, and sunk in the bottom about 2 fathoms, but poor. Blind lode cut through about 130 fms. in from mouth, underlying south about 1½ ft. to the fathom; it is well defined—this lode in my opinion should be driven on. From observations and dialling made by me from the Brown and Chelsea Beach Mines the Brown lode is not yet intersected. There are in level No. 4 two lodes, so called the Terrible and Gunboat, and I agree with the superintendent that they are the self and same lode—the Terrible, split and divided by a horse. The Last Chance lode, running 25° east of north, from 6 to 7 ft. wide; leader run from 1 to 6 in., nearly solid for 7 fathoms long, and worth 150 ozs. to the ton—this is 56 ft. from boundary.—Brown Mine: Good ore, full of brittle and ruby silver; worth 10*l.* per sack of 1 cwt.—the best 200*l.* per ton. There is a deal of work done, and no doubt other rich bunches will be found. In conclusion, I consider the property of the company throughout looks exceedingly well. Good and substantial tramways laid, first rate timbering, a magnificent concentrating mill working to perfection, splendid roads, and everything done in a miner like style. The superintendent, Mr. Morgan, understands every inch of his property and business. Thousands of tons of low grade ore, running on an average 30 ozs. to the ton, are now lying ready for concentration both inside and outside of the mines. The superintendent informs me that he can crush 40 tons a day of this class of ore, and can realise (net) over 3*l.* per ton on same, and I consider the richness of the company's property most satisfactorily proved by the wealth and strength of the lodes in the lowest workings of the mines. The lode at the bottom of the Terrible is so well defined that I have no fear in saying that the company has a great future in store.—*Brownville, Colorado, August* 1. THOMAS ROSEWARNE.

Annexed I enclose a letter from the agent of the mine giving his assays of samples taken from various parts of the mine by myself, which assays were made in my presence—

July 28.—In accordance with Mr. Rosewarne's request, I have this day assayed the specimens taken out by him on his inspection of the Terrible Mine yesterday, the 27th ult., with the following results:—Specimen No. 1, taken from the 5th level, Terrible Mine, 100 feet east of Terrible shaft, 1600 ozs. silver to the ton.—Specimen No. 2, taken from the 8th level, stope No. 1, from Terrible shaft, to winze No. 1, 150 ft. in length, with 80 ft. back (just started), 50 ozs. silver to the ton.—Specimen No. 3, taken from the 8th level, stope No. 2 west, from winze No. 1 to winze No. 2, 180 ft. in length, with 80 ft. back (known as 8th level stope), 1120 ozs. silver to the ton.—Specimen No. 4, taken from the 8th level drift, 300 ft. west from Terrible shaft (part of 8th level stope), 2220 ozs. silver to the ton.—Specimen No. 5, taken from the east end of the Union tunnel stope, west of the tunnel, 140 ozs. silver to the ton.—Specimen No. 6, taken from the west end of the Union tunnel stope, 110 ozs. silver to the ton.—Specimen No. 7, taken from the breast of the Union tunnel drift, 140 ft. west from the breast of the tunnel, 35 ozs. silver to the ton.—Specimen No. 8, taken from the drift I have just started on a lode intersected in the Union Tunnel, 580 ft. in from the entrance, which lode is, to the best of my belief, the Tuscororra, the said drift being now in from east side of tunnel 12 ft., 140 ozs. silver to the ton.—Specimen No. 9, taken from Silver Ore shaft, 3 ft. below the 7th level, 1740 ozs. to the ton. As you desired to have controls of my assays made in England, I beg to hand you herewith the half of each specimen I made said assays from, and the buttons, the results of same, the value of which I have above described. Each specimen I have put up, together with silver button derived from same, in separate papers, with the result duly marked.—CECIL C. MORGAN, Superintendent Colorado United Mining Company (Limited).

FOREIGN MINES.

RICHMOND CONSOLIDATED.—Telegram from the mine at Eureka, Nevada: Week's run, 867,000, from 950 tons of ore. Doré bars from refinery, 840,000. Five days' run. Six weeks now required repairing furnaces and machinery, and placing compressor.

— R. Rickard, August 14: Since my last there is nothing of importance from the mine or furnaces. Connection has been made between the cross-cut from the bottom of the 200 winze and the rise from cave in back of No. 4 chamber, which has opened a small body of very fair ore. No. 7 chamber below the 400 is looking just the same as last week. No. 10 has somewhat improved in the upper portion. All the other chambers are without any change. The 400 drift on quartzite is without alteration; it is being drifted on the contact of quartzite and limestone. The 500 drift, on the fissure, is very much improved in appearance; the last 15 ft. drifted is in very promising ground for ore; it is broken lime, mixed with irony matter. A winze has been started, which is down 11 ft. I am expecting to develope an ore body in this winze in a very short distance sinking. There is nothing new in any other part of the mine. The furnaces during the past week lost considerable time, owing to several accidents with the machinery. Everything is again in good working order, and will no doubt hold out until the end of the month, when we intend closing down for thorough repairs to machinery and furnaces.

NEW ZEALAND KAPANGA (Gold).—Telegram from Capt. James Thomas: Since last message we have crushed 20 tons of ore, yielding 70 ozs. of gold; prospects good.

PLACERVILLE GOLD QUARTZ.—Telegram (Sept. 5): Crushed 60 tons not selected ore from winze, yielding 12 per ton. Ore improving in quality as it is being further developed.

SANTA BARBARA (Gold).—Mr. Hilcke (Pari, July 26) reports that the general appearance of the lode operated on since the last advices had been without material change, and that it was yielding fair quality stone for the stamping-mills. The native force had, however, been unusually irregular in attendance, in consequence of which the operations had not progressed as could be esired. The pumps had been put in action, and the machinery of the same was working well—about eight hours pumping forking the water which accumulates in the mine every 24 hours.

PITANGUI (Gold).—Mr. T. S. Treloar (Pitangui, July 31) reports that the adit had been advanced 9½ fms. (19 yards) during the month of July. Another stream of water was cut on July 17, and the Picard had since been soft enough to require some heavy timberwork, but at the date the ground, though very wet, was firmer, and it was hoped that the jacotinga would shortly be met with, a yellow clay-slate contiguous to it at surface having been intersected in the adit the day the mail was dispatched. The sinking of the shaft had been resumed, and was progressing satisfactorily.

MINERAL HILL.—Mr. Plummer, August 14: Star Mine: The ore has given out entirely in the roof of this mine, and the men are now engaged in getting the broken ore to the mouth of the tunnel. I am greatly disappointed at this portion of the mine giving out so suddenly. After we have cleared out the broken ore we may be able to set it on tribute.—Troy Winze: We are making our usual progress in driving the level from this winze. The spar ledge is a little smaller than it is usually, and lately some small strings of quartz have been seen.—Burrows: In this department we have but little change. Our average daily number of Indians during the past week has been nine. The work has been pushed ahead as fast as we are able, as I am exceedingly anxious to have as large a crushing as possible.—Mill: The water-pipes leading from the water ranch to the tank have been overhauled, and the latter caulked. I think that everything is now in good working order.

BIRDSEYE CREEK.—G. S. Powers, Aug. 13: I must offer an apology for my long silence; I was away attending the suit of the "Farmers *versus* the Hydraulic Miners" from July 24 up to Aug. 10, and have only got clean-up for July ready for mint to day. The gross amount taken out was only 227 ozs., or only about $4200; of that amount about $3500 was taken from the Neece and West, and the balance—$700—from Waloupa. The amount taken from Waloupa was much more satisfactory for the amount of washing done, as we did not run water on this mine but five 24-hours days during the entire month. I cannot account for the falling off in Neece and West other than that we were washing on the west side of the channel, and were evidently entirely off from the lead. The bottom and cuts gone over last month show plenty of coarse heavy gold, and will evidently when cleaned in make the clean up equal to about $7000, as I feel confident we did not save more than one-half the gold in our sluices. We cannot expect to buy water later than September 15 from South Yuba, as they will exhaust their lake supply by that time. We exploded a blast this morning in the Neece and West of 800 kegs of powder (about 10 tons) on our best ground, and I am pleased to say that it was a fine success. It is my intention to consume all the water at this blast during the remainder of this water season, or until washed off. We have, or shall have, the foundation laid for making a very good showing at the close of this season. The yield for July being so unsatisfactory, I thought it best not to send cable, and will not now cable you until final clean-up.

EBEBHARDT AND AURORA.—Capt. Drake, dated Aug. 8, writes:—The lateness of my telegram, sent this day, is owing to the change just made by the suspension of work in the tunnel—a step I have for some time feared would become necessary, but still hoped it would not.—Curtailment of Expenses: I am not unmindful that the directors have assured me of the utter hopelessness of any expectation that the company would ever advance another shilling for the continuance of operations here when the present cash and bullion resources should become exhausted. I have, therefore, never ceased to feel that the utmost carefulness should be exercised to keep the company's workings within its resources. Retrenchment, therefore, has become inevitable. In explanation of the naked facts, as given in my cablegram, I have to say that the assay value of the ore that we have thus far milled in our present run falls much below our estimate, and the percentage that we are obtaining is not up to the usual yield of our milling. Why it is not is what sorely perplexes me. Everything about the mill and its workings is the same as they have been in the former runs, and I still have Mr. Randall, as amalgamator, who has succeeded so well in the last three years of our milling. Most of our mill hands are also the same we have had in other runs. The ore evidently contains some refractory elements not hitherto encountered in our milling. You will bear in mind that the ore we are now milling is from a feeder leading from the chamber that furnished us with ore in 1875 and 1876. It seems to contain more arsenic; and notwithstanding that some of it is very rich in silver, yet, as a whole, the assay value of what we have milled in the present run is only about $34·50, and from present appearances I do not expect we can save more than 60 to 65 per cent. I am endeavouring by every means that seems possible to improve the percentage. I am also using every precaution to have the ore better assorted at the mine, a portion of the work which is, indeed, difficult. The board is aware that for the last year and more we have not been at work upon what may be termed a body of ore, but have been following a feeder of ore leading from our old chamber. At times it has been exceedingly small, and in following it much lime rock of necessity had to be broken with the ore. Really the value of the ore itself has not warranted the expenditure upon it. But the prospects have been, and are at this time, too good to abandon. One encouraging feature of this work is that the ore we are now finding is in the bottom of the drift, and seems to be inclining downward, and there is at least an equal prospect of its widening outward and downward into another chamber of value. If any means could be devised whereby the mixing of the fine lime rock and chlorides in our blasting could be avoided the assay value of the rock that comes to the mill would be much improved. But this, as well as any assorting of the fine rock, is impossible, hence you will understand the cause of the low grade of the rock that we are milling. The showing of ore in the mine at this writing is surely as good as at any time in the last several months. Although there is no essential profit in the present development yet it is the best prospecting of the mine that can be done, which may yet result favourably. It certainly does not seem possible that so much of uncertainly as to the development of this ore can continue but a short time longer. As the bullion that we may now produce from the ore that we are now milling is to be our only resource for the continuance of the company's workings in Nevada I felt compelled to reduce expenditures to within a limit that can be met with our bullion yield. I exceedingly regret the necessity of the step. I have, therefore, suspended the driving of the tunnel until the means for prosecuting the work is better assured than at present. I closed down the work at 11 P.M. of the 6th inst. I am exceedingly pained to see this enterprise carried so interestingly near the old Eberhardt Mine and from the lack of means feel unable to continue it further.

I can but say that I feel as if all my hopes and expectations were blasted, nor am I unmindful of the depressing effect this stoppage of the work will naturally have upon my company in London. The face of the tunnel is in the best working ground that we have had in the entire distance, and the men were never making better progress (from 10 to 14 ft. per day); the formation is black shale. Total length of the tunnel, 3841 ft. You will observe by the weekly report that I have started a prospect drift west, at a point in the tunnel 3735 ft. from the mouth, and in the same black shale already mentioned. I have started this drift for the purpose of prospecting west of the tunnel, and running into the Eberhardt ground. I am venturing this expense with the following force:—Six men (two on each eight hour shift) on the drill, one man by day and one by night running the machinery, and one man doing the repairing and smith work: total, nine men. I shall continue the work with caution, and endeavour to not overreach my bullion shipments. If our tunnel work can be pushed to at least a point under the old Eberhardt workings, I for one would be exceedingly glad, still struggling and hoping for a more favourable turn in the situation.

PONTGIBAUD.—W. H. Rickard, Sept. 2: Monthly Report: Roure: The engine-shaft, sinking below the 175 metre level, continues in hard porphyritic rock. The 175 cross-cut west has cut into the lode a width of 2 metres, of orey stuff, worth from 6 to 7 per cent. of lead, yielding about ½ ton of ore per current metre. The 150 metre level north is unproductive. The same level south yields ore stuff of about 5 per cent. lead. The rise in the back of this level is unproductive. The 100 cross-cut east continues in hard ground. The winze below the 100, west of shaft, is is pretty favourable ground, but the vein is unproductive. The 80 south, on Virginie's lode, yields ¼ ton of ore per metre. The same level north yields a little low quality saving work. The 60 metre level north yields ¾ ton of ore per metre, and the winze behind this end ¼ ton. The 40 north yields from ¼ to ½ ton per metre. The 20, north and south of cross-cut, on the eastern part, opens a little tribute ground. The adit level, on caunter lode, yields ¾ ton of ore per current metre. Our stopes maintain their usual yield, but the tribute pitches are fallen off in value.—Mioche: The tribute pitches in the back of the intermediate level are without change to notice.

La Brousse.—The rise in the back of the 140 metre level is in hard ground. The undercutting of the lode in the 120 metre level south produces 1½ ton of ore per metre. The 100, south of air shaft. is unproductive. The undercutting of the lode in the 100, south of Basset's shaft, yields 1¼ ton of ore per metre. The 80, south of air shaft, has entered more congenial ground, and the lode presents a more kindly appearance, but yields no ore to value. The undercutting of the lode in this level yields ½ ton per metre. The 60, on the western branch, is unproductive. Our stopes and tribute pitches throughout this mine yield fairly. The sinking of the new engine-shaft continues to proceed favourably.

Pranal.—The 100, south of St. George's shaft, yields stones of silver-lead ore and blende, and lets out an abundance of water and gas. The same level north is in favourable ground. The 90 south, on the eastern part, yields ½ ton of ore per metre, and the same level on the main part of the lode yields also ½ ton per metre. The 90 north yields stones of blende spotted with ore. The 70 north has varied in yield from ¾ to ½ ton of ore per metre, but is now unproductive. The 70 south is poor. The 50 south yields ¾ ton, and the winze in the 50 north also ¾ ton per metre. Our tribute pitches in this mine continue much the same as last month.—Surface: Our dressing operations have gone on regularly, and the samplings have amounted to 246 tons.

PESTARENA.—Thomas Roberts, Aug. 28: District Pestarena: I am pleased to report a slight improvement in the 100 end south, where the lode is at present yielding 2½ tons of ore per fathom, and looking promising for a further improvement. The lode in the 100 end north has somewhat fallen off in value. In the winze behind the south end of the 90 we have a lode yielding 6 tons of ore to the fathom, worth about 2 ozs. of gold per ton. The 80 end north, the 65 south on No. 2 lode, the 55 end north under Acquavite, and the 33 end driving in Peschiera, on No. 5 lode, are at present unproductive.—Acquavite Department: In the 55 end north we have a slight improvement. The lode in the 33 end north has also improved. The water has been drained to the bottom of the Pescheira again, and the sinking of the new incline shaft will be resumed next month.—District Val Toppa: No. 2 Level: In the end south of the 1st cross-cut eastward, on the supposed line of the great quartz lode, we have an improvement, the last mill trial of the ore coming from this end giving at the rate of 14 dwts. of sponge gold per ton. All other points not mentioned are much the same as when last reported on.—Surface: The wire carriage rope from the old Zero level down to the wire tramway terminus at Val Toppa Mine is drawing near completion. At the establishment we have commenced to make the change in our apparatus in front of the stamps, with a view to resume the stamping trials.

— Sept. 3: The production of gold for August is as follows:—From Pestarena District, 294 ozs. 15 dwts. 8 grs. from 323 tons of ore; yield per ton 18 dwts. 6¼ grs. From Val Toppa District, 196 ozs. 9 dwts. 14 grs., from 491 tons of ore; yield per ton 7 dwts. 23¾ grs. Total from both districts 491 ozs. 4 dwts. 22 grs. of gold, obtained from 814 tons of ore amalgamated.

THE WEEK.

SATURDAY, AUGUST 31.—Egyptian bonds were almost unmoved by the publication of the Khedive's letter accepting the Ministry of Nubar Pacha. All that requires to be noted is a rise of ¼ in the Preference and Unified to 76 and 56⅛ respectively. Turkish Fives remain at 13⅛, while the 1871 loan has now reached 55. The Scotch bought Caledonian to-day, having during the previous few days induced selling here, and forced the price up 1¾—to 113¾. Chatham Preference closed at 92¾, and the Ordinary at 27¾. In mines, Colorado rose to 4⅝. 4⅞, and New Zealand Kapanga were in some request at 1⅝. These shares may go a little higher.

MONDAY.—Owing to the serious accident at Sittingbourne on Saturday Chatham Preference opened at 89¾, and the ordinary at 26⅝, ultimately closing at 2 and 1 lower on the day. Both Unified and Preference lost ground, the latter at the finish being 75⅛, and the other 56. Turkish stocks are completely featureless, every issue leaving off the same as on Saturday. Odessa Waterworks (A) fell to 5. Day by day the shares become more difficult to deal in. There was a good demand for Colorado, Richmond, and Kapanga, all of which had a slight rise. Colorado were dealt in at 5, and Kapanga at 1 11 16ths.

TUESDAY.—Colorado shares receded to 4½, and Kapanga to 1⅛, but Richmond remained steady at 9. There were again more sellers of Egyptian Preference and Unified than buyers, the former dropped to 75 and the other to 55¼. When the Unified during April and May last was veering between 27 and 30 the price of the Preference was 55; most brokers tell their clients that the Preference ought to go up, but it seems unwilling to do so. The 20*l.* call in Carn Brea and the one of 30s. in Tincroft has made all quotations for tin shares nominal; the first named are said to be 20 to 40, and the other 4 to 6, call paid in both instances.

WEDNESDAY.—Egyptian Unified and the Preference were forced further downwards, the former dropped to 54, and the other to 73¾. Very few buyers come forward, "bulls" consequently get anxious and close, fearing that by waiting they will only have to take less. Turkish Fives now cost 13⅝, and at this they may almost be considered a fair speculation. The Caledonian dividend was made known to-day, and was as usual a source of grief to confiding speculators here. Last year 6¼ was given, 5 per cent. at least was considered a few days ago certain, but only 4½ is to be given; the stock fell from 113 to 111. North British was unaffected (94¼ to 94½).

THURSDAY.—Attention was drawn last week (when commenting on miscellaneous securities) to London Steamboat shares being obtainable at 8¼. At one time yesterday (owing to the disaster to the Princess Alice s.s.) the price fell to 6½; at the close, however, the shares were quoted 7 to 8. Several enquiries were made to-day for Lawe's Chemical, but very few shares could be got. The dividend at the rate of 9 per cent., which is payable on the 14th inst., amounts to a little over 6s. per share.

FRIDAY (*Opening*).—A marked recovery is shown in Egyptian stocks. At one time yesterday the Unified could be got at 53¾, and the Preference at 73½. Now buyers offer 55 and 75 respectively. Turkish Fives are 13¾ to 13⅞. In mining shares Eberharts are offered, and no better than 3½ to 4, Colorado being 4½ to 4¾, New Zealand Kapanga 1½ to 1¾, and Richmond 8¼ to 8½. In lead shares business is very quiet. Van, 18 to 18¼; Rookhope, 10s. to 15s.; Glenroy, ⅜ to ⅝; Great Laxey, 18½ *to* 19: East Van, 3¼ to 4: East Chiverton, 1 to 1¼.——*Two o'Clock*,—A few purchases have been made of Colorado shares at 4¼, stimulated

by a favourable description of the mine which appeared in the Times of this morning; but shares remain very plentiful. An improvement at Morfa Du is reported, and shares are better. The railway market is neglected. Unified have been 56—now only 55⅛. London Steamboat, 7⅜ to 7⅝. Wolverhampton Trams, 1 to 12¼. Huntington Copper, 1⅝ to 2. Imperial Credit, 7⅛ to 7⅝. Liebig, 29 to 29¼. Natal Land, 4 to 4¼.—*Four o'Clock*.—There is an improvement of ¼ in Unified; the price at Paris is telegraphed as 56. Turkish Fives, 13¾ to 13⅞. Chatham Preference, 90¼ to 90½. Colliery shares quiet. Chapel House, 2¾ to 3. New Sharlstone, 3½ to 4. Pelsall Coal, 3 to 4. Newport Abercarn, 4 to 4½. Cardiff, 1¼ to 1½. Javali, 7s. to 9s. Chicago, ¾ to 1. Don Pedro, 10s. to 12s. 6d.

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The Mining Market: Prices of Metals, Ores, &c.

METAL MARKET—LONDON, SEPT. 6, 1878.

IRON.	£ s. d.	£ s. d.
Pig, GMB, f.o.b., Clyde..	2 7 6-	—
,, Scotch, all No. 1 ...	2 8 6-	3 10 0
Bars, Welsh, f.o.b. Wales	5 2 6-	5 5 0
,, ,, in London.	5 15 0-	—
,, Stafford., ,, .	6 15 0-	7 10 0
,, in Tyne or Tees ...	5 5 0-	5 10 0
,, Swedish, London ..	9 0 0-	9 10 0
Rails, Welsh, at works..	4 15 0-	5 0 0
Sheets, Staff., in London	8 5 0-	—
Plates, ship., in London	6 15 0-	6 17 6
Hoops, Staff.	7 10 0-	—
Nail rods, Staff. in Lon.	6 2 6-	6 15 0
STEEL.		
English, spring 13	10 0-	19 0 0
,, cast 30	0 0-	40 0 0
Swedish, keg.... 14	0 0-	—
,, fag. ham. 15	0 0-	—
LEAD.		
English, pig, common .. 16	2 6	16 5 0
,, ,, L.B. 16	10 0-	16 15 0
,, ,, W.B. 17	0 0-	—
,, sheet and bar..17	5 0-	17 10 0
,, pipe.....18	0 0-	—
,, red 19	0 0-	—
,, white 24	5 0-	26 0 0
,, patent shot ...21	0 0-	—
Spanish.....16	0 0	16 2 6
NICKEL.		
Metal, per cwt 18	0 0-	20 0 0
Ore, 10 per cent. per ton.24	0 0-	28 0 0
QUICKSILVER.		
Flasks of 75 lbs., ware.	7 0 0-	—
SPELTER.		
Silesian 18	0 0-	—
English, Swansea 18	0 0-	—
Sheet zinc 21	10 0-	22 10 0

TIN.	£ s. d.	£ s. d.
English, ingot, f.o.b...	62 10 0-	—
,, bars ,, ...	63 10 0-	—
,, refined.....	64 10 0-	—
Australian	57 5 0-	—
Banca	60 0 0-	(nom.)
Straits	57 5 0-	—
COPPER,		
Tough cake and ingot.	66 10 0-	67 0 0
Best selected	67 10 0-	68 0 0
Sheets and sheathing .	71 0 0-	—
Flat Bottoms	74 0 0-	—
Wallaroo	69 15 0-	—
Burra, or P.C.C.	68 10 0-	—
Other brands	64 0 0-	65 0 0
Chili bars, g.o.b.....	59 15 0-	—
PHOSPHOR BRONZE.		
Bearing metal	£112	0 0
Other alloys	£120 0 0-	140 0 0
BRASS.		
Wire	7½d.-	8d.
Tubes.....	7½	—
Sheets	8¼	- 8¾
Yel. met. sheath. & sheets.	6	- 7
Nails composition.....	8¾	- 9
TIN-PLATES.*	per box.	
Charcoal, 1st quality ...	1 0 0-	1 2 0
,, 2nd quality ...	0 19 0-	1 0 0
Coke, 1st quality	0 16 0-	—
,, 2nd quality	0 14 6-	0 16 0
Black .....per ton	16 0 0-	16 10 0
Canada, Staff. or Gla., at Liverpool	11 10 0-	12 0 0
Black Taggers, 450 of 14 × 10	30 0 0-	—

* At the works, 1s. to 1s. 6d. per box less for ordinary; 10s. per ton less for Canada; IX 6s. per box more than IC quoted above, and add 6s. for each X. Terne-plates 2s. per box below tin-plates of similar brands.

REMARKS.—This week opened and ended badly for metals, and the beginning of the first autumn month is decidedly dull and gloomy, but there is an old saying, that "a bad beginning of times makes a good ending;" so, perhaps, as time progresses business will improve. There may be no material advantage, but there is consolation, at any rate, to be derived from some good old standing maxim, and in the absence of more profitable matter to discuss, it is just as well to take what comfort can be obtained in that way, for it is something to have the appetite gratified if it cannot be satisfied, and we venture to submit a phrase which is accepted among us because it is truthful, and will not be found altogether inappropriate to the present occasion, and it is this, that people say—"When things come to the worst they begin to mend." Every cloud is said to have a silver lining, and as the dark clouds and thunder have lately been hovering about quite long enough, it is but reasonable to suppose that they are now in a fair way of being scattered and dispersed. The storms of life as well as those of the atmosphere have been violent, and all Nature seems to have been in a dreadful commotion, and poor suffering humanity has had much to contend with in war, pestilence, hurricans, railway accidents, and steamboat collisions, but such sad catastrophes are too melancholy to dwell upon. The weather at least is brightening up, and that alone produces an exhilarating effect; then let us hope that at last "a good time is coming," and that better days from every point of view are in store for us all.

The trade is not always going to the bad, and the long continued downward course which our markets have pursued may be considered as a rather favourable feature in one respect, inasmuch that the fall which was pending has already taken place, and our experience teaches us that after a severe fall a reaction invariably follows; therefore, in the natural course of events, some improvement may shortly be looked for. It is "a long lane without a turning," and considering the long time we have been in the lane we must be approaching if we have not already reached the end, for time alone shows that the distance must be considerably shortened: but there is stronger evidence even than that of its termination, and we may come upon brighter scenes sooner, perhaps, than is generally anticipated. Steam and telegraphy effect wonderful revolutions and cures, in an incredible short space of time, and by the aid of telegraphy the world moves along much faster than in former ages.

The state of affairs, however, is not exactly such as we could wish them to be, but there is no harm in taking heart even in the midst of adversity, for "a faint heart never won a fair lady, and we intend to win back our commerce, as we have no idea of surrendering that fair lady. We shall, however, have to be vigilant and diligent to overcome many outstanding difficulties, and exercise courage and fortitude to bear with losses, but resolution and perseverance cannot fail to meet with ultimate success. Hitherto everything has tended to depress trade, but future prospects are not entirely divested of their bright side, and if confidence could only be restored trade would revive, although for a time scarcely equal in amount to its former dimensions, yet greatly exceeding its present limits, and nothing would be more welcome to the trading and industrial classes than to learn that the end of the depression had been reached, and that legitimate business was in a fair way of recovery. Now, it would answer no purpose to raise or circulate false hopes, and our extreme caution forbids such an indulgence as unworthy and dishonourable, but at the same time if their exists the slightest foundation for taking a more hopeful or a less gloomy view of things we are bound to notice it publicly with the emphasis it deserves. Well, then, let us come to the point at once, and look at things in a business-like sort of way, for plain and straightforward reasoning is always appreciated and better understood. To a plain question we will give a plain and decided answer, and the question we would put to ourselves and others is simply this—Have the causes of disturbance to our markets all been realised or not? Our reply is chiefly so undoubtedly, and, therefore, having secured the balance on the right side all that is necessary to prevent a repetition of former mistakes is to act more prudently and cautiously in future operations. It is the last pound which breaks the camel's back, and it is the excessive stocks which have bent down our market. The shipments of tin from Tasmania have been too large, the charters from Chili tremendously heavy, the supply of lead too great, and the accumulations in the stocks of pig-iron unprecedently large. Importers and suppliers generally will now see the folly of overstocking the markets, it is sure to recoil upon themselves, and dearly bought experience will teach them wisdom and moderation. The stocks have somewhat alarmed holders lately, and several parcels this week have been sacrificed, in comparison with what might have been realised for them if holders had acted upon our advice earlier and sold when we told them to do so.

The feeling of uneasiness regarding the course of the money market has diminished. The Indian exchanges are still very low, but will probably be higher later on when the Bombay season opens again. The general aspect of political affairs is somewhat better. Austria seems to be making more headway in quelling the Bosnians. Russia is reported to be gradually withdrawing from San Stefano, and the Turks are evacuating the strongholds and fortresses ceded to Russia. Nothing of a very serious character politically appears to be going on or likely to occur for a while, and should it only prove a lull, yet it will afford breathing time and a good opportunity for the commercial community to recruit their strength It may prove an excellent thing after all for the peace of Europe that some of the great military and most troublesome powers are financially crippled; they must necessarily seek rest in order to gain time to replenish their exhausted treasuries. Their misfortune may prove our fortune, and the longer they are kept short of funds for State purposes the longer peace may prevail. After mature consideration we come to the conclusion that the greatest evils are really past, and that commercial affairs will shortly improve, and as the prices of most metals, iron excepted, are tolerably safe, we should recommend consumers to execute their orders without further delay, or, if they are not in immediate want, to book forward wherever practicable at about current rates. There is only one thing which prevents our giving utterance to a very strong expression of opinion in favour of the future prospects of our markets, and we think it right to mention it that others may also watch with us, and know how things are turning—we mean the course of the money market, for if money gets dear and tight we shall probably have a crash or a regular scrimmage, but if, on the other hand, it should gradually become easier we shall tide over the difficulty and get into smooth waters. The state of transition is often a trying, perplexing, and entangling one, but it is all the more necessary to keep a good look-out ahead, and as the veil is lifting, and the outlook is evidently brightening up, we hope it will fall to our lot to issue very different reports to those we have been compelled to give for such a long time past.

COPPER.—We have touched the price of 60*l.* per ton for Chili bars, an event which no reader of this Journal can be surprised at. Copper altogether has now reached the lowest prices ever known, at the same time the stocks have never been as large as at the present moment. The great question is now, does the one circumstance compensate for the other? We think that if trade revives one or two months of good consumption and consequent large deliveries from the stocks would easily reduce statistics to figures reached in former years when prices ruled higher. The deliveries for the second half of August have been satisfactory—3151 tons in England and France, and the statistics of September 1 show nearly 1000 tons reduction from those of August 15, and are not worse than those of August 1. Unfortunately the charters from Chili for the second half of August have been 4000 tons, so that most probably the statistics of October 1 next will show an increase on comparison with those of the 1st instant. It was, however, known that the Chilian firm so largely interested in copper has had a large stock in Chili for several years (at one time estimated at 13,000 tons) which has been gradually transferred to Europe, and it is believed that the stocks in Chili are now not above the usual quantity. At any rate the production in Chili is rather on the decrease than increase. In Australia there is a decided decrease, whilst the production in other countries seems to show no increase whatever. Taking all the circumstances into consideration the present prices of copper seems to us to be quite in proportion to the stocks, and even an increase in the stocks would probably not much prejudice the present values. On the other hand an increased consumption and better statistics would necessarily produce an advance in prices.

IRON.—Those who have placed their confidence in higher prices must, indeed, be blind if they do not now see their folly. Spring, on which they relied for orders, has passed, peace has been proclaimed, and autumn has began without bringing the long-looked for revival; nothing but dreary winter is before us. We have repeatedly endeavoured to explain the cause of this depression, and warned our readers that under existing circumstances a revival was next to impossible; we again say that nothing but a lower level will bring back the trade that has been positively thrown away. Yes, thrown away; for did not our principal producers blow out furnaces and stop production at the very time when our customers were beginning to supply themselves? Could anything be more disastrous in its results? Had the ironmasters four years ago taken the "bull by the horns" and reduced their prices at once, they would have crushed foreign competition, instead of which they have been so slow in realising the fact that British manufactures are not invincible; they have allowed time to foreigners to introduce their goods to our customers, and the result is we have now to study how to regain our lost position. It is not pleasant to see indents sent from from India and the colonies for Belgian iron; one good order was placed this week for Belgian bars at 9s. per ton less than Welsh delivered in London; this we consider a national disgrace, and should be remedied without further delay. It is in our own hands; lower prices must rule. Pig-iron, rails, bars, &c., have been lower than at present, when we had nothing to fear from competition? What, therefore, is to prevent a reduction to the minimum? Our advice is reduce price and reduce stocks. Not an order should be allowed to go past. Production should not be checked; why crush what Nature has blessed the country with? Coal and iron have been the secret of this nation's prosperity; why let that prosperity slip from us?

Have we the right men in the right place? Now that Crawshay, Bolckow, and Baird are no more is there no one to take their place? Let us hope that the spirit of enterprise has not died out of our great producers, and that the capital made by their forefathers will not be allowed to remain idle. With science and all the modern improvements for the economical production of iron at their disposal, surely they will not allow themselves to be beaten. The cry has been for some time, "Iron cannot be made at the price." This we consider nonsense. What was possible 25 years ago should not be impossible now. The fact is the manufacturers were so gorged with profits in 1872-3 that they are slow to accept a moderate return for their capital. The following review of the position of our various iron producing districts will prove that the view which we take of the position is not without reason. As the Welsh trade has almost collapsed, and Middlesborough has partly met with evil by selling at more reasonable prices, let us first look at the position of the Scotch pig-iron trade. Some 20 years ago Scotland was the only place in the world where a stock of iron was kept, and where, in times of prosperity, the demand could be satisfied. It was Scotland's pride to be the storekeeper of the world, but gradually in the North of England—what is called the Middlesborough district—an iron industry has sprung up which has caused a perfect revolution in the iron trade of this country. In a very few years the production in the North of England of pig-iron has nearly doubled that of Scotland; but this is not all. Middlesborough has been able to produce iron so much below the price of Scotch that already half of the iron required for local consumption in Scotland is supplied from the furnaces of the North of England, and there is every reason to anticipate that, should Scotland not find means to cheapen the price of her iron, this branch of her industry will soon be extinguished. Since 1875 (only three years) the stock of pig iron in Scotland, notwithstanding that 27 furnaces have been blown-out, have increased fully 500,000 tons, and are now estimated at nearly 700,000 tons in makers' hands and in stores; and, although the exports last year were considered wretchedly bad, there has been up to this date already a falling off of 53,000 tons. The present price for mixed numbers is 48s., but still Middlesborough can afford to export to Scotland at the rate of 6000 tons per work, pay a freight of 6s. or 7s. per ton, and beat the Scotch makers by 2s. per ton. One would scarcely believe it possible that this state of things could exist, but we are glad to see signs of a step in the right direction. Some of the makers reduced their prices last week 1s. per ton, and have given notice to their men of a 10 per cent. reduction in wages. Our idea is that nothing less than a drop to 45s. for g.m.b. will bring back their trade. Scotch iron would have found its level long since had it not been for speculation, fully one third of the stock being held by speculators to their cost, and more than one holder of warrants has gone to the wall lately. Let others take warning, and clear out while they can. The loss will, no doubt, be great, but most assuredly in this case the first loss will be least.

We cannot close our remarks without expressing surprise at finding the London brokers (who should be better posted) have been buying for some months past Scotch iron warrants in large quantities for forward delivery. We are rather curious to know what argument they have used to their clients to induce them to venture upon such a rotten and reckless speculation. Already to their cost they must see their mistake, and we trust will have sufficient moral courage to face their first loss. There will soon be a million tons of Scotch iron, and our advice is let those who have allowed such such a stock to accumulate bear the burthen of, it. The shipments of Scotch pigs last week were 8493 tons, against 9281 tons same week last year; 9647 tons in 1876; 10,616 tons in 1875; 9488 tons in 1874; 10,629 tons in 1873; and 15,799 tons in 1872.

The portracted opposition on the part of the makers of Middlesborough iron to meet buyers' limits has at last given way, and sales are reported at a reduction of about 6d. per ton. In stating Scotch pigs to be worth not more than 45s. in comparison with Middlesborough, that comparison was made upon the late quotation for Middlesborough; and, therefore, in proportion as Middlesborough declines our estimated value of Scotch must be reduced in like proportion.

TIN.—The holders of this metal appear to have taken fright all at once, and the consequence is a fall to 57*l.* 10s. in the price of foreign. The fact is that whenever a little lull sets in, and money looks a little irregular, holders become alarmed on account of the large stock, and think the market is going to nothing, just as if there was no value whatever in the article, but this is just like them, and only a repetition of their previous blunders. They are either in the skies or in the depths below. There is no steadiness about their movements, and they seem to be off their balance again. What is there to be so much alarmed at? The stock on the 31st ult. was 9659 tons, against 9525 tons on July 31, or an increase of 134 tons, and the landing parcels were 451 tons, against 550 tons, or 99 tons less. Deduct this from the 134 tons of actual increase, and there remains 35 tons increase only, which is, of course, too insignificant in a stock of 10,000 tons in round figures to affect prices in the slightest degree. The deliveries from London last month were 1033 tons, against 885 tons in July, so it would appear that consumption is not decreasing But it may be asked what all the scare is about then? Is the quantity afloat so great that we are going to be inundated with tin? We will give the grand totals of the whole of what is on the spot, afloat, and in Holland, compared with last month, and the difference will be seen to amount to the extraordinary figures of 181 tons, but what is perhaps still more extraordinary the price is fully 7*l.* per ton lower, and the holders are in the most nervous and excitable state lest the price should continue to fall The deliveries for the first eight months of this year will be found to consist of 7959 tons, against 6852 tons. That is not such a very unfavourable feature, and the trade seems to be needlessly alarmed at the moment about trifles.

SPELTER.—The market is quiet, stocks have slightly increased, there being 1748 tons on the 1st inst. in England, against 1515 tons on August 1 last.

ZINC.—At public sale yesterday 95 tons were sold at 20*l.* 10s.

LEAD.—This metal remains easy at about former quotations. Parcels of pigs still continue to arrive from New York.

QUICKSILVER.—The price is unchanged at 7*l.*, but the demand has not been large.

TIN-PLATES.—At present the demand shows no improvement, and we hear of sales of Cape being made in Liverpool under 13s. 6d. per box, but such low prices may be partly accounted for by reason of certain houses being in financial difficulties in that locality.

THE IRON TRADE.—(Griffiths's Weekly Report).—Friday evening. The Glasgow market continues weak, and prices have again fallen during the past week, closing this evening with sellers at 47s. 6d., a fall since last Friday of 9d. per ton. We quote makers' No. 1 iron—Gartsherrie, 55s. 6d.; Coltness, 58s.; Calder, 56s. 6d.; Langloan, 56s. 6d.; Summerlee, 54s.; Monkland, 50s., f.o.b. Glasgow; Glengarnock, 54s.; Eglinton, 49s., f.o.b. Ardrossan; Shotts, 57s., f.o.b. Leith. The experience of this week fully bears out the remark we ventured to express in our last issue, that the trade is quieter, with diminished activity. There is more doing in certain specialties. Steel rails continue the subject of enquiry, and a fair business; but the price remains too low, hence the makers are by no means anxious to book large parcels. Lowmoor, Bowling, and Kirkstall Forge, W. Barrows and Sons, W. Millington and Co., of Summerhill, and Robert Heath and Son have more orders for best iron, the latter house being engaged on contracts for the Admiralty; and, no doubt, with these houses the trade is sharper and better, but as a general rule, and taking the trade all round, we have no decided improvement to report: indeed, the prospects entertained at the conclusion of the labours of the Congress have not been realised. This is the true state of the trade.

The pig-iron makers in all districts, except Glasgow, feel that prices cannot go lower if they are to have any remuneration for their capital and plant; hence all the smelters who hold stock have made a dead stand to the demands of buyers in regard to price; and, as buyers are lukewarm, there is really no business being done in the raw material. Probably we shall see a favourable reaction in pig iron before Quarter-day. The wire and fencing-rod trade still suffers from the inroads of German competition, and for the present there is no prospect of the least abatement of this evil. Belgian competition, except in channel and girder iron, is less felt than it was. With regard to girders and channel iron, the Belgian, now take the lion's share. Even our great Leeds merchants, where inland carriage forms a large item, are supplied with this iron exclusively by the Belgians. The same country has successfully invaded the markets of India, China, and Japan for nail-rods, and some kinds of common bars. The markets for the raw material are firm in Staffordshire, Shropshire, and Lincolnshire. At Middlesborough things are not so firm. This market, in sympathy with Glasgow, is weaker. On the Glasgow Exchange the market is gradually giving way. The price there today registers a loss of 9d. per ton on g.m.b. iron during the week. Charcoal tin-plates are quieter.

The same ruinously low prices are taken for coke. I. C. coke can be readily bought at 14s., or even less, per box, delivered into Liverpool, less discount and commission. Whether these plates can be made for the money is a question which the Welsh makers can answer better than we can. All the metals sympathise with iron. Tin is gradually giving way; the price to-day is 47*l.* for Straits and Australian, a fall of 1*l.* per ton this week. Copper without change. Spelter drooping and uncertain. The failure of Mr. George Holt, merchant, Liverpool, is announced this week. The liabilities approach 50,000*l.* One of the limited liability companies in Staffordshire are creditors for 2500*l.*; with one exception, this embraces all the liabilities in Staffordshire. There are two creditors in Shropshire, both amounting to 200*l.*; 11,000*l.* of the indebtedness is owing to the Welsh tin-plate makers, fairly divided among the trade, amounts varying from 200*l.* to 900*l.* Rumours have been in circulation of the failure of a Member of Parliament in the North, who holds an important position in connection with one of the Yorkshire banks, and with the North-Eastern Railway Company.

MESSRS. VIVIAN, YOUNGER, and BOND—COPPER: The market has been very dull and latterly depressed during the past month. Chili bars declined from 62*l.* to 61*l.* 5s., and at about the lowest figure a moderate business was doing until the 1st inst. Charters for the latter half of August were then advised by cable as equal to 4000 tons in fine copper (3500 tons bars and ingots, and 300 tons ores and regulus for England, and 200 tons bars for France); this quantity, with 2000 tons previously advised, making in all 6000 tons for the month: this large shipment, however, does not, in our opinion, represent any increase in production, for recent advices assure us the output of copper in Chili was tending to a decrease. But the effect of the suspension of specie payments has naturally been to send down the Exchange and raise the dollar price of produce: therefore, the inducement to all holders of stocks has been great to realise, and the desirability of such form of remittance as copper, when a safe remittance of any sort is scarce, has led merchants to avail themselves of this opportunity to the full—thus we see such heavy shipments just now. The market closes dull and depressed, at about 60*l.* 5s. for g.o.b's.—TIN: The price of foreign has gradually, but persistently, fallen throughout the past month from 61s. to 58s., partly from the causes which have affected all metals unfavourably, but chiefly from the continuance of heavy shipments from Australia, which were definitely advised by cable on the 4th inst. at 1 00 tons for August. The deliveries from London warehouses were 1035 tons; the arrivals 1079 tons; the stock has slightly increased. The Cornish standards have been reduced altogether 4*l.* per ton, and the price of English common ingots to 62s. 6d.

Our remarks upon the MINING SHARE MARKET might be almost stereotyped from week to week, as "no business doing, and quotations merely nominal."

TIN is again down. The smelters on Saturday last further reduced the standard 2*l.* per ton, and the general depression in Cornwall has been greatly increased by a fall of 20,000*l.* in Carn Brea, and 9000*l.* in Tincroft, the two mines having paid dividends between them little short of 500,000*l.* The readers of the *Mining Journal*, however, will not be so much surprised at the calls now made. It is some years ago since we first called attention to the debts on both of these mines, and the facts have been kept before our readers, that dividends of late years were only paid by keeping back a few months of current costs.

Carn Brea have declined to 30, 32½, call paid; the accounts at the meeting showed a loss of 4290*l.* on six months' working, and a debit balance of 31,279*l.*, so that the call of 20,000*l.* leaves a debt still owing of 11,279*l.* The tin sold in the six months—615 tons—realised 21,739*l.*; copper ores, 579*l.* The costs for the six months ending August were 26 844*l.* The call of 20*l.* has been made payable in four instalments of 5*l.* per share, and no share to be transferred till the whole amount is paid. Tincroft are down to 5, 6, call paid; at the meeting the accounts showed a loss on six months' working of 2934*l.*, and a debit balance of 18,461*l.* A call of 30s. per share was made, payable in four instalments of 7s. 6d. per share each, with instructions to the purser not to transfer any shares until all the holders' shares have been paid upon. The tin sold in the six months—342 tons—realised 11,848*l.* The costs are charged to July. Dolcoath, 23 to 25; Penstruthal, 3s. to 5s.; South Condurrow, 10 to 10½; South Crofty, 4 to 5; South Frances, 3½ to 4⅝; Wheal Agar, 3½ to 4; Wheal Grenville, 2 to 2½; Wheal Peevor, 5⅜ to 6¼.

COPPER MINES are quiet. At the Cornish tickeling on Thursday the standard for ore remained stationary and the average price obtained was 3*l.* 10s. 6d. per ton. South Caradon, 60 to 70; at the meeting a dividend of 1*l.* per share was declared, leaving 2541*l.* in hand. The copper ores sold (1457 tons) realised 8001*l.*, and a profit on three months of 520*l.* The mine looks well, and is returning nearly 500 tons of ore per month, and with a better price for copper would pay well. Mellanear, 3½ to 4; the sale of ore on Thursday (560 tons) realised 1801*l.* West Tolgus, 50 to 52; the sale here (290 tons) realised 1598*l.* West Seton, 7 to 8; the ore (130 tons) brought 452*l.* Morfa Du, ⅝ to ¾; the lode here continues of the same size, and is worth 10 to 12 tons of bluestone per fathom. Parys Mountain, 5s. to 7s.; another branch 1 ft. wide has been cut in the 90 crosscut south, containing a mixture of sulphur and copper ore, and the strongest branch, the agent states, seen for some time.

LEAD MINES, though chiefly dealt in, remain unusually depressed, and with merely nominal quotations for the most part. Roman Gravels, 7½ to 7⅞; the agent's are looking for an improvement in the 65 south, where the lode is worth 1 ton per fathom. South Roman Gravels, ⅝ to ¾; the prospects here are improving in the saw pit; the lode, which is 7 ft. wide, yielding rich stones of lead. Tankerville, 3½ to 3⅝; the sale of lead ore for the month (100 tons) realised 960*l.* Van, 18 to 19. East Van, 3½ to 4; no change or improvement here at present. D'Eresby Mountain, 75 to 85; the Fuchuslas lode in the No. 1 adit is 4 in. of solid lead. D'Eresby Consols, 10 to 11; Aberllyn, 10 to 11. Pateley Bridge, 3⅜ to 4¼; the 30, east of Rake vein, is still worth 8 tons of lead per fathom. The produce for August is 50 tons of lead ore, valued at 500*l.*, at a cost of about 300*l.* Glenroy, ⅜ to ⅝; the lode in the shaft is 4 to 5 ft. wide, with a little blende and lead in the quartz.

Great Laxey, 18½ to 19½; Grogwinion, 2⅛ to 2⅜; Bodidris, 1⅛ to 1⅜; Ladywell, ⅞ to 1; Leadhills, 2½ to 3; Rookhope Lead, 14s. to 16s.; Tyn-y-Fron, 1⅜ to 1⅝; West Chiverton, 5 to 7; Wye Valley, 1½ to 2; West Wye Valley, 2½ to 3; Caron, 2 to 2½; Red Rock, 2 to 2½; Denbighshire, 1½ to 1⅝; Great Holway, 4⅜ to 5½; St. Harmon, 2⅜ to 3½; Mawston, 55 to 65. Gorsedd, 4 to 4½; this mine sold 20 tons of lead ore on the 31st ult. at 11*l.* 2s. per ton, and 30 tons of blende at 3*l.* 6s. 6d. per ton.

South Darren, 1⅛ to 2⅛; the 100 west is expected to be soon in the rich ore ground passed through in the 90. The lode in the winze below the 80 (down 10 fathoms) is worth 40*l.* per fm.; the 90 end, 35*l.* No. 1 stope, in the 90, is worth 36*l.*, and the two stopes in the 80 are worth together 26*l.* The sampling is 10 tons of rich silver-lead ore. Pandora, 15s. to 20s.; the whole of the 700 unissued shares, we understand, have been subscribed for at 2*l.* (with a bonus share to each), making the price paid to the company 1400*l.*, and the cost of each share 1*l.* An auxiliary steam-engine will soon be on the mine, which is likely to make good profits in a few months, particularly if the price of lead improves.

FOREIGN MINES.—Cape Copper, 29½ to 30½; Colorado United, 4⅜ to 4⅝; Chontales, 12s. 6d. to 15s.; Eberhardt and Aurora, 3½ to 4; Flagstaff, 10s. to 12s. 6d. Frontino and Bolivia, 2⅜ to 2⅝; the directors here have declared a dividend of 1s. 6d. per share. Javali, 6s. to 8s.; New Quebrada, 2⅜ to 2½; Santa Barbara, 1½ to 1⅝; Pitangui, par to ¼ prem.; New Zealand Kapanga, 1⅛ to 1⅜; Richmond, 8¼ to 8⅜; St. John del Rey, 280 to 290; Blue Tent, 2¾ to 3. Hultafall, 3½ to 4½; the 15 west has widened out to 7 ft., and very rich.

The Market for Mine Shares on the Stock Exchange has exhibited the same absence of animation as for some weeks past. British mines, no matter what metal they produce, seem to be entirely neglected, and even in foreign mines the transactions are practically limited to about a dozen concerns. To-day Cape Copper have been sold at 30¼; Colorado United at various prices about 4⅜; Flagstaff at 10s.; New Quebrada at 1¾ and 1⅞; Richmond at 8⅜ to 8½; Rio Tinto Spanish Coupon Bonds at 61; Scottish Australian, new, at 11-16; and St John del Rey at 287½. With regard to British mines, it is generally felt that a return to prosperity can scarcely be expected until the introduction of rock drills has become general. The miners are now beginning to understand that the use of the rock drill enables them to earn larger wages, and shareholders will soon find that to provide the necessary funds for purchasing rock drills and compressors is the only means of making

their mines pay profits. In Cornwall the Beaumont drill is doing excellent work, and in other parts of the country Ingersoll's, Cranston's, Kainotomon's, MacKean's, and others are giving full satisfaction. At the Derwent Mines the drill used is Dunn's, and it is roughly estimated that the saving to the company is fully 20 per cent.—a more careful comparison will be published shortly. But it is not the mere money saving that is an advantage in machine drilling; it enables a larger quantity of ground to be opened up in a given time, and thus, by diminishing the percentage of fixed charges, the aggregate returns are obtained at a smaller cost, and a margin is left which provides dividends for the shareholders.

A gigantic suit against the so-called Bonanza Kings has been commenced in the Twelfth District Court, San Francisco, to recover from them about 7,000,000*l.* sterling net, or 9,000,000*l.* sterling gross, for wrongful appropriation of profits. The defendants are Flood, Mackay, Fair, Heydenfeldt, Fish, Wells, Barron, O'Connor, Consolidated Virginia Mining Company, Pacific Mill and Mining Company, Pacific Wood, Lumber, and Flume Company, Virginia and Gold Hill Water Company, and the Nevada Bank of San Francisco. The shareholders of the Consolidated Virginia (as contradistinguished from the company in its corporate capacity) are practically the plaintiffs, John H. Burke representing them. The main issues involved in the action, says a local authority, "are by no means new to the public, as they have frequently been alluded to in these columns. The manipulations of these mines by the Bonanza Kings, and the questions involved are no longer questions of law but of fact. A long series of American, as well as English, decisions firmly establish that a director or trustee of a corporation as such acts in a fiduciary capacity, and cannot make a contract with himself, either directly or indirectly, and if he does such contract is void, even (as decided in a late English decision) if the contract made by him was an advantageous one for the company. Since the death of Mr. O'Brien there has been a diminution of the somewhat extravagant estimate placed upon the wealth of the Bonanza Kings, and although their aggregated possessions are immense, much greater than they would have the world believe, it is extremely doubtful whether they possess enough to meet the enormous demand upon them that a favourable judgment to plaintiffs in this suit would entail, and such a termination to the suit might convert the Kings of to-day into ordinary mortals." The details of the claim are too extensive to insert here, nor would the insertion be useful, unless accompanied by a history of the mine, and of the several dealings which have taken place during some years past. Capitalists should be cautioned against assuming that the verdict that will be obtained will favourably influence the financial position of the plaintiffs, and the plaintiffs can scarcely be adversely affected beyond a few hundred thousand pounds for legal expenses.

Too much attention cannot be directed to the editorial repudiation in another column of a communicated paragraph published in last week's Journal. The source of the paragraph was so obvious, especially after the circulation of it amongst the shareholders with the report of the meeting to which it referred, that it is curious that any objection should have been taken to it; for the most careful writer may sometimes be excused for the inadvertent use of "we" instead of "I" when labouring under mental excitement, though it may be hoped that such a distinct and unequivocal repudiation as that now given will serve as a lesson, not only to the gentleman implicated in the present case, but to many others unconnected with the editorship who have the objectionable habit of "pluralising."

New Zealand Kapanga, 1⅜ to 1⅝; a telegram to hand this week announces the result of the first crushing since operations were resumed: 20 tons have been dealt with, producing 70 ozs. of gold. This produce is remarkably large, and would seem to show that the Albion shute is turning out richer than was anticipated.

Richmond, 8¼ to 8¾; the usual telegram from the mines at Eureka states that the week's run was $67,000 from 950 tons of ore. During the week the refinery produced $40,000—five days run. Six weeks are now required for repairing the furnaces and machinery, and placing compressor. Whatever objections may be raised to the way in which smelting operations have been conducted, it must be acknowledged that the furnaces have done good work, and have stood well as to time before requiring general repairs. The manager (Aug. 14), writes:—The 500 drift, on the fissure, is very much improved in appearance; the last 15 ft. drifted is in very promising ground for ore; it is broken lime, mixed with irony matter. The furnaces during the past week lost considerable time, owing to several accidents with the machinery. Everything is in good working order, and will no doubt hold out until the end of the month, when we intend closing down for thorough repairs to machinery and furnaces. Mr. Brereton's letter, in another column, is not altogether incorrect as to facts, but might lead to absurdly false conclusions. He evidently does not understand in the slightest degree the process by which, and the objects for which, an English company secures the protection of the laws of a foreign country in which it may have to carry on business, and he, therefore, makes statements which, if left unchallenged, might create panic without cause among the shareholders. Placerville, 2¼ to 3; attention was called to this company some few weeks ago. By a telegram just received it appears that a small parcel of unselected ore had been crushed, yielding $12 per ton. As it is estimated that the entire cost of mining and milling will not exceed $6 per ton, it will be seen that there is a good margin for profit, and no doubt is entertained that shortly steady and regular returns will be made.

Colorado United, 4¼ to 4½; the company's property has been thoroughly inspected by Mr. Thos. Rosewarne, whose known practical experience as a miner much enhances the value of the report which has just been received from him. After referring to the various points of operation, he states that there is a deal of work done, and no doubt other rich bunches will be found. He considers the property of the company throughout looks exceedingly well. Good and substantial tramways laid, first-rate timbering, a magnificent concentrating mill working to perfection, splendid roads, and everything done in a miner-like style. The superintendent, Mr. Morgan, understands every inch of his property and business. Thousands of tons of low grade ore, running on an average 30 ozs. to the ton, are now lying ready for concentration both inside and outside of the mines. The superintendent informs him that he can crush 40 tons a day of this class of ore, and can realise (net) over 3*l.* per ton on same, and he considers the richness of the company's property most satisfactorily proved by the wealth and strength of the lodes in the lowest workings of the mines. The lode at the bottom of the Terrible is so well defined that he has no fear in saying that the company has a great future in store.

Referring to the same subject, another correspondent writes—"This mine has attracted a great deal of attention this week, two or three of the largest shareholders having lately sent out Mr. T. Rosewarne, who has had many years mining experience in primary rocks in Cornwall. This gentleman describes the property as covering such a large area of ground, and consisting of a series of 19 mines, that the inspection occupied him four days. What he would desire to call attention to is the fact that the lode, taken on an average, is from 2 to 3 ft. wide, producing 2 tons per fathom at least, and in some places much more. Also the richness of the ore, which in some places exceeds 2000 ozs. of silver to the ton. Mr. Rosewarne also in his report refers to the stopes in the 8th level. These stopes are 330 ft. in length and 80 ft high, all of which ground is proved, and the ore contained therein is now only waiting to be stoped down. This large body of ore is estimated at a very high figure; and, lastly, the most important feature in Mr. Rosewarne's report is the fact that at the bottom of the 'Silver Ore' shaft, the lowest point of the mine, he found the lode to look best, with a leader 6 in. wide, or 3 tons to the fathom, nearly solid mineral, averaging 700 ozs. of silver per ton. Thus proving that the company are now sinking upon the main ore body, and that the lode at the bottom of the Terrible is so well defined that Mr. Rosewarne has no fear in saying that the company has a great future in store. We would also call the attention of our readers to an article published in another column from the Times of Thursday, which gives a most interesting account of the mine."

Last Chance, ⅔ to 1; steam was got up on Aug. 10, and everything worked admirably. It was expected the lower levels would be unwatered in about 10 days. The company intend working the mine extensively; the boilers are of 100-horse power, on an improved tubular system, enabling the steam to be made rapidly and economically. There will be a great saving in the consumption of fuel, a matter of no small moment where firewood is so costly. Great credit is due to the officers and miners, all of whom have laboured with a hearty good will in pushing the works ahead, and getting them into operation earlier than anticipated.

The latest advices from the Mineral Hill Company state that the shafts are being vigorously sunk upon the ore veins, and from present indications it is believed that rich rock will be found. About 2000 tons of ore is now on the dumps ready for milling, which, it is estimated, will run near $150 per ton. The mills, which have been closed for some time, were to resume running on Sept. 1 with a full force of hands, principally those who have been engaged in extracting ore. Captain Plummer, the general superintendent, is highly spoken of.

A correspondent writes:—"Outside the bonanza Comstock Mines there is great excitement, $600 having been found east of the foot of the Sierra Nevada incline. Hundreds of rumours are flying about, some putting Sierra Nevada as the coming bonanza, and others maintain that the biggest show for a huge rise is in Union Consolidated. There is no doubt that present indications point to Sierra Nevada. The supposed east wall of the Comstock lode struck the other day by the incline was not the east wall at all, but a thin streak of porphyry through which the incline soon passed, and disclosed ore of magnificent promise and richness—some say assays going as high as $600 per ton. The people in Virginia City are greatly excited, and in the neighbourhood of the stock bulletins has been almost impossible from the crowds that are wedged in the street."

Hultafall, 3½ to 4½; in a report received from the mines to-day the agent says—"The west level in the 15 is splendid, we are driving in solid mineral, the lode has widened out again from 5 ft. to 7 ft. The west level in the 25 continues to improve.

Lead Mines have been somewhat firmer, with a little more business doing. Van, 18 to 19; the 105 west has further improved, and is now a splendid lode, worth in the end 9 tons of lead ore per cubic fathom. The 105 east is also improving. Other points of the mine looking well, and surface operations progressing satisfactorily.

Mineral Corporation, 10 to 11; during the past month active progress has been made at the Hafna Mine. In No. 1 adit the shaft has been drained, and a fine lode discovered 8 ft. wide, worth 2 tons of lead per fathom. The lode in the end driving west is worth 1 ton of lead per fathom. No. 1 adit is 55 fms. long, and it will be driven to intersect the lodes of the Trefriw Mine; these lodes in Trefrew have yielded large quantities of lead. No. 2 adit has been cleared for 50 fathoms; as soon as it has been fully cleared and its length ascertained the end will be driven. No. 3, or tramway adit level, is 203 fms. in length, and for the greater part of this distance the main part of the lode has not been seen for want of cross cutting; this will be commenced as soon as the rise has been communicated with No. 2 level, which will improve the ventilation. The ground of Hafna is very easy for mining operations. At no point of operation is more than 6*l.* per fathom being paid. The men have risen 3 fms. in the rise during the month; the lode here is worth 1 ton of lead per fathom. The deep adit is being driven to cross cut the lode; 4 fms. have been driven during the month, and it is expected that in about 4 fms. more driving the lode will be cut at the lowest level of the mine. The men continue to make good progress. The mine is altogether opening out capitally.

Grogwinion, 2½ to 3; nothing new to report. Saint Hirmon, 2¾ to 3¼; the discovery which has been made in the 67 fathom level east continues good. Wye Valley, 1½ to 2; West Wye Valley, 2 to 2½; a parcel of 40 tons of lead ore has been sampled, and the prospects of the mine, especially in depth, continue good. Caron, 2 to 2½; the machinery is now almost finished, and as soon as it is dressing operations will commence. Red Rock, 2 to 2½; Mawston, 55 to 65; and Hartington Moor, 1½ to 2. Pant y Mwyn, 5¼ to 5½; the dividend warrants are being sent out. The mine is reported to be opening out large reserves of lead, and the output is being increased monthly, so that it is thought probable that in future the dividends will be paid quarterly. As the mine is only in its infancy, it is the opinion of several practical mining engineers who have recently inspected the property that it will prove one of the richest lead mines ever discovered in the Principality.

Pateley Bridge, 4 to 4½; the 30 east, on Rake vein, still continues a fine course of lead ore, worth 8 tons per fathom. The 20 east is opening out very well, and other parts of the mine looking well. West Pateley, 1½ to 2½; nothing of importance to report.

Subjoined are the closing quotations:—

Assheton, ⅛ to 1; Devon Great Consols, 1 to 1⅛ prem.; Dolcoath, 24 to 26; East Caradon, ¼ to ½; East Van, 3½ to 3¾; Glyn, ⅜ to ⅝; Great Laxey, 18 to 19; Hingston Down, ⅛ to ⅜; Leadhills, 2½ to 3; Marke Valley, ⅛ to ⅜; Parys Mountain, ⅛ to ⅜; Pateley Bridge, 4 to 4½; Penstruthal, ⅛ to ⅜; Roman Gravels, 7 to 7½; Rookhope, ½ to ¾; Tankerville, 3¼ to 3½; Tincroft, 4 to 6; Van, 17 to 19; West Assheton, ½ to 1; West Basset, ½ to 1; West Chiverton, 5½ to 6⅛; West Pateley, 1½ to 2½; Wheal Grenville, 1⅜ to 2½; Almada and Tirito, ½ to ⅝; Birdseye Creek, ⅝ to ⅞; Blue Tent, 2¼ to 3; Cape Copper, 29½ to 30½; Cedar Creek, ⅛ to ⅜; Chontales, ½ to ¾; Colorado United, 4¼ to 4½; Don Pedro, ⅜ to ⅝; Eberhardt and Aurora, 3¼ to 4; Exchequer, ⅛ to ⅜; Flagstaff, ⅜ to ⅝; Frontino and Bolivia, 2⅝ to 2⅞; Hultafall, 3½ to 4⅛; I.X.L., ⅛ to ¼; Kapanga, 1¾ to 2; Last Chance, ¾ to 1; New Quebrada, 1¾ to 2; Oregon Pref., 3½ to 4; Placerville, 2¼ to 3; Port Phillip, 7-16ths to 9 16ths; Richmond Consolidated, 8¼ to 8¾; St. John del Rey, 280 to 290; Sierra Buttes, 1⅜ to 1⅝; South Aurora, ⅛ to ¼; Tecoma, ⅛ to ¼; United Mexican, 3 to 3½.

COLLIERIES.—A little more business has been done in these shares, but dealings are still restricted, holders and buyers both appearing to be waiting for more settled times. There can be no doubt that the present is the most unsuitable time for holders of colliery shares to realise, and on the other hand investors could not wish for a better opportunity of picking up excellent securities at prices far below their intrinsic value. A prolonged depression in the coal trade has brought prices of colliery shares lower than they have been for many years past, and the improvement in the coal market is so recent, and has been so stealthy, that it has not yet had any material effect upon the quotations of shares. There are many good shares at the present moment which may be bought at very much below their intrinsic value, and investors will do well not to lose an opportunity which may not recur for a long time to come. The improvement of trade which, notwithstanding all that has been and is being written, set in some time ago has now become more apparent; the number of old furnaces which after lying idle for a long time are now being blown in prove that those who understand the iron trade feel confident of better times. The improvement in the coal trade, especially in some districts, is quite as apparent to those who study facts and figures.

When it is considered that a considerable advance has been made in iron and steel production during the past month or two, and that in normal times the home production of iron consumes about one third of the whole output of coal in Great Britain, it becomes evident that the prospects of our collieries are improving, and it is quite certain that so soon as the truth is fully realised we shall see owners of colliery shares holding to their securities with more firmness than of late. The Ynisedwyn Company continues to attract the attention it deserves. From all appearances, and from reliable data as to past working and future prospects, it may be safely anticipated that this company will achieve a success such as attends few undertakings. Its agents' hands are full of orders at prices which show a handsome profit, and it is likely that the dividends will be very large. The shares have been bought at par during the week. We hear from Chapel House that the new engines are complete, and working most satisfactorily. Sinking has been going on to the Arley Mine, the best seam of coal in the district, which mine will, probably, be reached in a day or two. Arrangements are being made for the erection of a fan to supersede the old system of ventilation by furnace, the fan being in the long run by far the cheapest and most efficacious, and beyond all question the safest. The directors evidently mean to make this colliery a first-class one, supplying it with the most approved plant, and pushing ahead in such a way as to ensure its yielding full returns. The shares may be looked upon as safe for a rise. Workings at Altami are reported as progressing satisfactorily. The shares close at 3¼ to 3½; Lay Hall are at 6 to 8; Thorp's Gawber, 2¼ to 2¾; Cardiff and Swansea, 1 to 1¼; New Sharlston, 3 to 4.

At Redruth Ticketing, on Thursday, 1374 tons of copper ore were sold, realising 4828*l.* 9s. 0d. The particulars of the sale were—Average standard, 86*l.* 2s.; average produce, 7¼; average price per ton, 3*l.* 10s. 6d.; quantity of fine copper, 99 tons 19 cwts. The following are the particulars:—

Date.	Tons.	Standard.	Produce.	Per ton.	Per unit.	Ore copper.
Aug. 1.	1719	£ 83 6 0	8¾	£4 3 6	10s. 0½	£50 5 0
„ 22.	2409	91 0 0	6¾	3 0 6	9 6½	47 14 0
Sept. 5.	1374	86 2 0	7¼	3 10 6	9 8½	48 13 6

Compared with the last sale, the standard remains stationary.

*** With this week's Journal a SUPPLEMENTAL SHEET is given, which contains—Original Correspondence: Boring Machinery (H. Waddington); Rock-Drilling Machinery (A. Brocklehurst); Rock-Drills—the Halkyn Mines Drainage (D. J. Kennelly); New Air Compressor; Mining in New South Wales (R. D. Adams); Richmond Mining Company (R. M. Brereton); Richmond Consolidated Mining Company; Richmond Mining Company (L. T. McEwen); Mining in North Carolina (C. M. Buel); Kynance Cove (R. Symons); the English Lead Trade (J. Owen); Lead Mining in Flintshire; Pant-y-Mwyn (Mold); Cardiganshire Mines—Cwm Brwyno (A. Francis); Morfa Du Mine; Llanrwst Lead Mine (R. Knapp); the Great Elwy River Lead Mining Company; Bedford United Mines (H. Minton)—Electro Desilverisation of Lead—the Mineral Wealth of North Carolina—Mining and Mines in Colorado—Foreign Mining and Metallurgy—Venezuelan Gold—Gas Motor—Registration of New Companies—the Wild Duck, or Sportsman's Arms—Meetings of General Banking, South Caradon, Carn Brea, Tincroft, H. Briggs, Son, and Co., Colliery Companies, &c.

PANDORA.—In last week's Journal a communicated paragraph was inserted drawing attention to the meeting, and, owing to the writer's too habitual use of "we" in connection with his statements and opinions, it has been assumed to represent the views of the Editor of the *Mining Journal*, and has thus caused serious annoyance to Mr. J. H. Crofts, and which he would not have felt had the writer's name been appended. Some of the statements contained in the article no doubt reflect very strongly upon the action Mr. Crofts took in the matter; but the source of those reflections is so obvious that they cannot possibly have done Mr. Crofts the injury he imagines. The Editor, however, much regrets that they should have been inserted at all; and, in justice to Mr. Crofts, willingly states that he in no way endorses the remarks and conclusions of the writer—on the contrary, it is beyond question that, as stated last week, the way in which the action of Mr. Crofts has been dealt with by certain officers of the company is much to be deplored, whilst the report of the meeting cannot be read without leading to the conclusion that personalities against Mr. Crofts were permitted which the Chairman should promptly have checked. The question originally at issue was a simple one—the rejection of a certain offer of terms—and when that offer had been withdrawn the management should have contented itself with giving a dignified answer to certain charges made against it in its official character. All recriminatory discussion would thus have been avoided, and subsequent ill-feeling would not have existed. As it is we hope that the decision of the meeting will be accepted, and that future endeavours will be devoted to the furtherance of successful results to the working of the property.

SOUTH DARREN.—The 100 fm. level west will soon be under the rich ore ground in the 90, the end of which latter level is worth 35*l.* per fm.; and the winze below the 90, down 10 fms., is worth 40*l.* The 80 winze being holed to the 90, the men have resumed driving the 80. No. 1 stope, in the 80, is worth 36*l.*, and two others together 26*l.* per fathom. They sample this week 40 tons of rich silver-lead ore.

PATELEY BRIDGE—GREAT DISCOVERY.—This valuable discovery continues worth fully 8 tons of lead ore per fathom. Already the 30 east has been driven through this extraordinary course of lead ore for a distance of about 10 fms., laying open reserves that will take years to extract, as the end is in virgin ground, and in the level above—the 20 east—although the end is yet many fathoms behind that of the 30, the vein is improving, producing good stones of ore, indicating the nearness of the ore body. Pringap—one of the richest veins in former times—has now a good mixture of ore throughout; it is 6 ft. wide, and looks very promising. The produce for August is 50 tons of lead ore, worth 500*l.*, at a cost of 330*l.*, and there is on surface 60 tons of lead ore dressed, 32 tons calcined, and 10 tons of pig-lead ready for sale. The oldest miners in the district speak of this discovery as the most valuable since that made many years since in the Grassington Mines, which yielded the Duke of Devonshire a net profit of between 60,000*l.* and 70,000*l.* per annum for many years.

EAST VAN.—The indications in connection with the cross-cut point to an early discovery, such as may cause the shares to have a rapid and substantial rise. Those best informed are availing themselves of the present low level of quotations.

TANKERVILLE.—The 206 east is worth 2 tons of lead ore per fm., and west 1½ ton per fathom; in the same level, west from Hootton's winze, the lode is worth 2 tons, and east 1½ ton. Several stopes are worth 1½ and 1¼ ton per fathom.

WEST TANKERVILLE.—The 86 south is in a lode 5 ft. wide, worth full 1½ ton per fathom. There are three stopes in this level, worth together 2½ tons, and two stopes in the 75 together 2 tons per fm.

ZINC ORES.

ARMAND FALLIZE,
INGENIEUR-CIVIL, A LIEGE (BELGIUM),
BUYER
1.—CARBONATED AND OXYDED ZINC ORES (CALAMINE, &c.)
2.—ZINC AND LEAD ORES MIXED TOGETHER, BUT DRESSABLE KINDS ONLY.

CAPPER PASS AND SON, BRISTOL
PURCHASERS OF
LEAD ASHES, LEAD SLAGS, SULPHATE OF LEAD, HARD LEAD, BRASS SLAGS AND ASHES, COPPER REGULUS, MATTE, SCORIA, TIN ASHES, TERNE ASHES, &c., and MIXED ORES or REFUSE, containing LEAD, COPPER, TIN, or ANTIMONY.

WALTER ROY AND ALLAN,
184, BUCHANAN STREET, GLASGOW,
EXECUTE COMMISSIONS FOR THE PURCHASE AND SALE OF SCOTCH PIG-IRON WARRANTS.
Sole Agents in Scotland for—
SPEAR AND JACKSON, Etna Steel Works, Sheffield; and
JOHN SHAW, Yorkshire Wire Rope Works, Sheffield.
Steel and Steel Tools, Pig and Manufactured Iron, Hemp and Wire Ropes all purposes, Indiarubber Goods, and Furnishings of every description for lieries, Founders, Engineers, Saw-millers, &c.

ASBESTOS.

THE BEST MATERIAL for the STEAM JOINTS of LOCOMOTIVES, MARINE and STATIONARY ENGINES BOILERS, &c.

It is manufactured entirely pure, and of the best and strongest qualities, into MILLBOARD, for STEAM, WATER, GAS, and ACID JOINTS,

Further particulars and prices of the undersigned,

SMITH, FLEMING, AND CO.,
17 AND 18, LEADENHALL STREET,
LONDON, E.C.

GEO. G. BLACKWELL,
5, CHAPEL STREET, LIVERPOOL,
PURCHASER OF
MANGANESE, ARSENIC FLUOR-SPAR, WOLFRAM, BLENDE, CALAMINE, CARBONATE and SULPHATE OF BARYTES, ANTIMONY ORE, CHROME ORE, MAGNESITE, EMERY STONE, PUMICE STONE OCHRES AND UMBERS, CHINA CLAY, LEAD ORE FOR POTTERS TALC, PHOSPHATE OF LIME, &c.

Exhibition Prize Medal—New South Wales, 1877.

AUSTRALIAN TIN—"KANGAROO" BRAND.

Having recently succeeded in REFINING the AUSTRALIAN TIN to the HIGHEST PITCH OF PURITY, the Undersigned is prepared to SUPPLY an article equal to the BEST REFINED ENGLISH.

The uniform assay of the "Kangaroo" brand ranges from 99·70 to 99·90 pure tin. An exhaustive comparative trial of various brands of Australian tin (see annexed report) have proved the

"KANGAROO" BRAND

To be superior to all other Australian tin, and equal to best refined English.

COPY OF REPORT.

"Sydney Galvanising Works, Sydney, Oct. 1, 1875."

"DEAR SIR,—I have much pleasure in stating that I have found the tin smelted at the 'Kangaroo' Tin Smelting Works superior to any other Australian smelted tin I have used in my business up to the present time, and in no way inferior but quite equal to the celebrated 'Lamb and Flag' tin.

This opinion has been arrived at after several carefully executed practical tests, as well as from metallurgical assays.

"I am, dear Sir, yours faithfully,

"S. L. Bensusan, Esq." (Signed) S. ZOLLNER."

Messrs. JOHNSON, MATTHEY, AND CO., the well-known Assayers, report on 24th December, 1875, on a shipment ex Durham, 25 tons of "KANGAROO" TIN, 99·95 per cent. pure tin.

In ordering the "Kangaroo" brand the trade will henceforth ensure uniformity of quality, excellence of texture, and absolute freedom from impurity

"KANGAROO" TIN SMELTING WORKS.

Sydney, September, 1877. S. L. BENUSANS

Mr. OLIVER PEGLER, M.E.,
Associate of the Royal School of Mines,
12, RICHMOND GARDENS WEST, KENSINGTON PARK,
UXBRIDGE ROAD, W., LONDON.
Mineral Properties reported upon, New Mineral Fields explored, and Metallurgical investigations conducted, Mr. Pegler having travelled through India, Spain, Portugal, and other countries.
Highest commercial references.

WANTED TO PURCHASE, a RESIDENTIAL ESTATE, within a convenient distance of town.
Apply to Messrs. HARVEY and DAVID'S, 117, Bishopsgate-street, Cornhill.

LUCKY MINERS.—A fortunate pair of miners, named Barker (father and son), got a good "sturt" at Dolcoath Mine during the past month, and received nearly 100*l.* on Saturday, the pay-day.

A PROSPEROUS GOLD MINE.—The Idaho Mine, at Grass Valley, is managed on the exclusive principle. We believe there has never been an assessment, and the $300,000 capital is therefore purely nominal. The mine began producing in 1869, and it has paid dividends from the start. The last dividend of $5 per share was paid yesterday. The dividend record of this mine to date is as follows:—

Years.	Dividends.	Amount.	Years.	Dividends.	Amount.
1869	11	$170,500	1875	11	$172,050
1870	7	37,200	1876	13	255,750
1871	12	232, 00	1877	12	240,250
1872	11	162,750	1878, to Aug. 8	8	178,250
1873	12	682,000			
1874	12	317,750	Total	108	$2,449,000

We doubt whether there is any other gold quartz mine in the State that can present such a favourable showing for stockholders. Even admitting that the whole capital was paid up, the dividends show an enormous rate of interest on the investment. The owners of the Idaho Mine do not believe it to be worked out by a long way. The work of adding 15 additional stamps to their mill has been going on for several months, and on Monday they started up with 50 stamps, equal to a reduction power of 135 tons per day. It was on account of the expense attending this addition that the dividend this month was reduced from $7·50 to $5 per share. The mine is yielding from the 6th to the 10th levels, both inclusive. On the 10th level, 300 ft. east of the main shaft, a new shaft is being sunk, and is already down 50 ft. below that level.—*San Francisco Stock Report*, Aug. 9.

Notices to Correspondents.

*** Much inconvenience having arisen in consequence of several of the Numbers during the past year being out of print, we recommend that the Journal should be *filed* on receipt; it then forms an accumulating useful work of reference.

CANADIAN MINERAL SUPER-PHOSPHATE—"P. Ll. N." (Shrewsbury).—Most of the producers of mineral super-phosphates appear to sell ready for use, and to the wholesale houses who deal direct with the consumers; "P. Ll. N." can, however, most likely obtain full information of Mr. P. Wilkinson, the secretary of the Chemical Manure Manufacturers' Association, 79, Mark-lane.

STUDENT MINING ENGINEER—"J. H. W." (Stoke-on-Trent).—There is, of course, nothing better than sending the young man to the Royal College of Science, in Dublin (the best and cheapest); Newcastle College of Science or Royal School of Mines, London. It would be difficult to recommend any one or two works which would give him any practically useful information calculated to qualify him for the position; but he perhaps might obtain, second-hand, Hyslop's Colliery Management, published in Scotland, but now out of print; Atkinson on Ventilation, a pamphlet, reprinted at Newcastle; Bailes's Students' Guide to the Principles of Coal and Metal Mining, publishing at Sutherland. Assuming it to be a Certificate of Competency that is required, the perusal of the official examination questions published from time to time in the *Mining Journal* will afford the best guide as to the subjects of study.

WEST VOR.—In the report of Capt. Harris, of Aug. 22, a clerical error occurred—"14½ ft." being used instead of "4½ ft," in the underlie of Sosen lode.

RICHMOND MINING COMPANY.—Owing to erroneous punctuation in printing the letter of Mr. J. Elliott in last week's Journal, one portion of the communication has been rendered entirely unintelligible. It should read—"On the supposition that Mr. Probert might, if shabbily treated by the English shareholders, or unfairly dealt with by the board, make an unjust use of the power placed in his hands, which his co-directors could withdraw at any moment if they were unwise enough to do so under the present state of affairs, it is very easy to make out a case for distrust, just as it is possible to do so in the instance of every trustee, executor, bank manager, or merchant's confidential agent. No business can be carried on without risk or loss from misplaced confidence; it is a contingency that belongs to human nature," &c. Also for "faecet" read "facit."

"X."—The use of gas may be said to date from 1792, in which year William Murdoch constructed apparatus by which he lighted his house and offices at Redruth.

Received,—"H. C. J." (Toronto)—"Shareholder" (Pandora)—"Amanuensis" (Rhydr)—"R. S." (Buckingham)—"F. G. S." (Paris): We should like to have the particulars—"N. R." (Glasgow): See the article in last week's Journal on Illuminating by Electricity—"R. W. S." (Manchester)—"J. W." (Glasgow)—"G. S. W." (Worthing): Write to the secretary of the East Chiverton Mining Company—"J. L." (Birmingham)—"J. P." (Manchester) had better write to Capt. Colenzo while he is at Llanrwst, and perhaps he will send the information desired—"W. C." (Ulverston), we are informed, will have received the particulars from another source—"Shareholder" (Cambrian).

THE MINING JOURNAL,

Railway and Commercial Gazette.

LONDON, SEPTEMBER 7, 1878.

THE GUIBAL FAN.

The all-important subject of the ventilation of coal mines still engages the anxious consideration of those in charge of them, and the question is naturally asked—Which system of ventilation furnishes the greatest amount of safety under the various conditions to which coal mines are subject? The best reply to this is the rapid increase in the number of Guibal ventilators since their introduction into England, at the Elswick Colliery, in the year 1863, and the large number of them now in operation. Whether looked at in the light of economy of fuel, or in securing the safety of coal mines by creating copious currents of air, or in the advantage they possess in dispensing with the element of fire underground, which is known in the case of the furnace (from instances both in old and recent times) to have been either a cause of accidents or a serious stoppage to the entry of a mine after an explosion has occurred, the fan must, on these grounds, be regarded as securing several important points of safety. No disadvantages of this kind attach to the mechanical ventilator, for its ordinary speed may be increased should an explosion occur, and thus materially assist in gaining access to the workings of a mine whilst temporary stoppings are being put up in place of others thrown down. The first measure in securing the safety of a fiery coal mine is ample and constant ventilation, and this is furnished by the Guibal ventilator, which, as now erected at large and gas-producing collieries, comprises the fan and two separate engines, each engine being used alternately to drive the fan, and kept going for two weeks or so before it is changed. The Guibal ventilators are now much used in the ironstone mines of Cleveland, on account of their efficiency in ventilating, and also on the score of economy of fuel. Where fuel is so expensive as in Cleveland this is an important matter, and, indeed, in collieries, where small coal is so abundant, there is no reason in wasting a pound of it when it might be turned to some good account.

In some of the collieries of Northumberland and Durham, where furnaces have been and still are at work at their greatest advantage—that is, at the bottom of deep pits—it was some time ago stated that the average consumption of coal at six large collieries was about 43 lbs. per horse-power of the force of the current of air in the upcasts. The consumption of coal by the Guibal ventilator is stated to vary from 7 lbs. to 16 lbs. per horse-power of ventilation produced. The saving of fuel between the two systems would, in fact, soon repay the cost of erection of a Guibal ventilator. The fan is especially adapted for shallow pits, where furnaces are incapable of producing much power. Even in the deep pits of Belgium, ranging from 800 to 1000 yards in depth, the fan is found still to exceed the furnace in efficiency—as much as 30 per cent.

The construction of the Guibal fan is known to most people connected with mines; it will suffice to say that the moving parts are so constructed that its durability and constancy of action are two of its prominent advantages. The form of the casing and the widening upwards of the chimney also tend to increase its efficiency. The useful effect has been found, from carefully-made experiments, to range from 56 to 70 per cent. of the steam-power of the engine. The casing and chimney for large fans are usually constructed of brickwork, but for smaller fans either this or sheet-iron or wood may be used. It may in time be found requisite in fiery mines that the entire apparatus should be duplicated; two fans might thus be used to exhaust by separate pits from the same mine, or they might be used alternately as required.

From a perusal of a list of the fans erected, which vary from 10 ft. to 50 ft. in diameter, the amount of ventilation produced by any size of fan may be found approximately; but, if the airways of a mine be exceptionally long and of limited area, there will be a decrease in the quantity of air circulated with a high-water gauge—it is inferred from this that more or less of the power is lost from frictional resistance in the airways. The 50 ft. ventilator erected at Hilda Colliery, South Shields, gives an effect in ventilation of over 60 per cent. of the steam-power. The quantity of air is now about 200,000 cubic feet per minute. Owing to the extent of workings and the condition of the pits it was found impossible to have continued operations without the fan. The highest quantity obtained by the furnaces used previously was 80,000 cubic feet per minute. The whole of the Staveley Coal and Iron Company's collieries, with one exception, are ventilated by means of Guibal fans. This company have determined to duplicate both the fans and engines at each of their large collieries, as an insurance against any possible failure.

The Guibal Fan is adapted either for exhausting air from mines or for propelling air into them. It is also worked in connection with pits where coal is raised in forty instances. In every case a guarantee of water-gauge is given, and from this and other data the amount of air that will be produced is calculated. Anyone may calculate for himself the useful effect of a fan under his charge from the formula— $\frac{q \times \text{W.G.} \times 5{\cdot}186}{33{,}000}$ = useful effect in horse-power.

Where q is the quantity of air in cubic feet per minute.
W.G. height of water-gauge in inches.
5·186 constant quantity.

This result compared with the indicated horse-power of the engine driving the fan gives the useful effect of the ventilator.

Mr. D. P. Morison, M. Guibal's sole representative in Great Britain (who is also constructing and erecting the fans and appropriate casings from M. Guibal's latest designs), has supplied us with a list of 211 fans which have been constructed in England, Wales, and Scotland, including one for Australia, two for Nova Scotia, and one for Japan. Besides these there are about 250 others in operation in France, Belgium, Germany, and other parts of the Continent. One or two of the fans may be referred to by way of illustration. At Eston, near Middlesborough, there is a fan, 37 ft. diameter and 12 ft. wide, worked by a 30 in. cylinder engine, 36 in. stroke, which was guaranteed at 60 revolutions to indicate 3·6 in. water-gauge; at Ebbw Vale, Monmouthshire, a fan, 40 ft. diameter and 12 ft. wide, having two engines, 36 in. cylinder and 36 in. stroke, was guaranteed at 72 revolutions to indicate 6·5 in. water-gauge; and a fan at Babbington, Nottingham, only 10 ft. diameter and 4 ft. wide, worked by a 6 in. cylinder engine, 12 in. stroke, was guaranteed at 100 revolutions to indicate 0·75 in. water-gauge. As the effect of a ventilating fan depends upon the depth, extent, and nature of the workings to be ventilated as much as on the size and character of the fan and engines, these examples convey some idea of the practical useful information which is derived from a complete list of the Guibal ventilators.

A small self-contained portable Guibal ventilator is now manufactured for special purposes, such as ventilating small collieries, sinkings, drifts, public buildings, steam-ships, &c.; the engine is geared, and the fan may be driven by steam, water, compressed air, or tail rope. They are made in three sizes, as under:—

Diameter of fan.	Width.	Diameter of cylinder.	Capability—Cubic feet air per minute.
2½ ft.	12 in.	3 in.	5 to 10,000
4 ft.	18 in.	6 in.	7½ to 15,000
5 ft.	24 in.	9 in.	10 to 25,000

But when large volumes of air are required permanently ventilators of large dimensions are more effective. A good medium size fan, 30 ft. by 10 ft., and two engines, 24 in. by 24 in. each, with brick casing and machinery, could be erected complete at a cost of about 1000*l.* might in some cases be recouped in a period of two to five years in saving of fuel alone. The destruction occasioned by furnaces in the fittings of an upcast pit give another advantage in favour of mechanical ventilation.

STEEL FOR STRUCTURAL PURPOSES.

The progress that has been made of late in substituting steel for iron for nearly all structural purposes has been of the most marked character. At one time, and that by no means remote, we had iron rails, plates for ships and boilers, axles, wheels, and many other things of the same material, but they are now being replaced by steel, and the revolution in the trade promises to be most thorough. Armour-plates have so far been made of iron, but the great problem now being worked out is to find steel of the utmost tenacity to supersede them, and this will be done, for many of the experiments recently made under the authority of the Admiralty have been all but successful. Then, in bridge making there is no reason whatever why steel should not be used instead of ponderous iron material. The great advantage that steel would and must have over iron for nearly all purposes is that there is the same or a larger amount of strength and resisting force, with, perhaps, half the weight, or less, of metal. That alone is a most important consideration, even if the question of cost is left out of calculation. But there is no doubt but what steel will be found to be far the cheapest in the long run for all the purposes to which we have alluded. This view was the one evidently entertained by the Committee of the British Association on the use of steel for structural purposes, for under certain conditions the members recommend it in the employment of engineering work, and for the authorisation of the Board of Trade. But to carry out the views of the committee the steel employed should be made by some process ensuring considerable toughness and ductility, and that a certificate to the effect that the steel is of such a description and quality should be forwarded to the Board of Trade by the engineer responsible for the work. The amount of strain that steel or iron will bear, or ought to bear, has long been matter of discussion, but the committee consider that everything brought to bear on the metal should not produce a greater strain in any part than 6½ tons to the square inch. Cases, however, may and will probably arise when it will be proposed to use steel of a special make, and of more than ordinary tenacity, and as the committee state, where a higher co-efficient might be permissible, but they think that such cases should be left for consideration until they arise, and that a higher co-efficient may then be allowed in those instances where the reason given is satisfactory to the Board of Trade. The report of the committee appears to be more particularly intended for the construction of bridges and railways, and for those purposes there is every reason to believe that in the future steel will be largely employed, so that there will be a very great saving in the weight of metal, with increased power of resistance to pressure or weight. The report, we are told, is being acted upon by the Board of Trade in the printed paper issued with reference to railway structures. The increase of a co-efficient cannot fail to result in a saving in the construction of bridges of considerable span. At present a co-efficient is assigned to iron of 6 tons per square inch, whilst in the future it will be 6½ tons per square inch of steel. There is now no doubt but what steel will be the chief agent in the construction of girders, and other descriptions of bridge and railway work, as it will be found to be the most economical.

COAL AND IRON TRADE PROSPECTS.

A circumstance of no great importance in itself, but not without significance in its bearing upon the coal and iron trades, has occurred this week in connection with that hitherto most unfortunate concern the Nant-y-Glo and Blaina Ironworks Company (Limited). The secretary has had "great pleasure" in announcing to the debenture-holders of the company that the coupon due upon the debentures, June 1, 1877, will now be paid. Similarly the coupon due Dec. 1, 1876, was paid early in June this year, so that during the last six months the company has succeeded in overtaking two of its coupons in arrear. The company has still to provide for the coupons of December 1, 1877, and June 1, 1878; and by the time they are met the coupon of December 1, 1878, will probably have become over due. Still it is something for this hitherto luckless concern to have actually paid a year's debenture interest in six months. We fear it cannot be said that the company has been enabled to accomplish this result by means of profits realised by the manufacture of iron; this cannot have been the case, since the ironworks have been completely at a standstill for some time past. Neither has any profit accumulated upon the company's hands through coal mining prosecuted directly by itself. The to a certain extent favourable change which has been established in the position of the undertaking is attributable to the fact that the company has succeeded in obtaining certain sums from the promoter or promoters, while the directors have also contrived to let the privilege of working the company's coal at fairly satisfactory rents to responsible capitalists. But although it is in one sense encouraging to find that the company is now by this means in receipt of an income of some kind it is, nevertheless, a reflection upon the management that private individuals should be found willing to undertake the working of the company's coal because they conclude that they can do so at a profit, while all that the company attempted to do itself, whether in the extraction of coal or the manufacture of iron, has only resulted in grievous loss.

But although all these considerations possess an interest for the share and debenture holders of the Nant-y-Glo and Blaina Ironworks Company (Limited), it is not so much with Nant-y-Glo and Blaina affairs as with general trade prospects that we propose to deal. The payment of overdue debenture interest by the Nant-y-Glo and Blaina directors appears to us to show that coal, at any rate, can now be worked at a profit in South Wales, and that is something. Moreover, at the Rhymney, Dowlais, and other great South Welsh ironworks there happily appear also to be indications of a revival in the iron trade also. Even at Cyfarthfa matters seem to have seen their worst, and there is a chance of the cheerful hum of industry being once more heard. Several circumstances certainly appear to be telling just at present in favour of the iron trade. Prices have fallen to a point at which they encourage consumers to make purchases; the large railway companies, for instance, have been tempted in some cases to give out considerable orders for permanent way *matériel*. Then, although the imaginary credit of a few wretched South American Republics or a decaying despotism like Turkey may have collapsed, the real, solid, substantial credit of the Anglo-Indian Government and the great British colonies in Australasia has acquired additional strength, so that what has been lost in one direction has been largely recovered in another. The acute distress to which the working population of South Wales has been reduced during the last three years has also, it may be hoped, taught them a salutary lesson. This remark applies not only to the population of South Wales, but also to the ironworkers of the other great industrial districts of the empire, and, upon the whole, it may be fairly considered that a good many encouraging circumstances are beginning to tell in favour of the iron trade.

CHEMICAL ANALYSIS OF MINERALS AND METALS.

Scarcely any subject in connection with chemistry can be made more interesting than that relating to the valuable products evolved from the minerals and metals with which this country is so favourably and so abundantly supplied. In previous articles we have shown the marvellous composition of ordinary coal in the many beautiful and every-day useful articles that are obtained from its refuse. The most brilliant dyes we have were to some extent met with by accident, for it was whilst engaged in experiments in the expectation of finding quinine in coal tar that Mr. Perkins discovered the now well-known anilines, and then found that potassic bichromate and a salt of aniline gave a splendid mauve, whilst a magnificent blue could be obtained by aniline and a salt of rosenline. From coal tar we have also paraffin, naphtha, benzole, the most pungent of scents, a soap unequalled as a detergent and for curative purposes, whilst we can scarcely touch any article of rich and brilliant colour but what has received its glowing hues from so dirty and offensive smelling a substance as coal tar. But almost every other mineral and metal as well has certain valuable properties that when developed by the practical chemist are of the greatest benefit to the human family either in administering to its ordinary daily wants, providing healing medicaments, or in detecting impurities, adulterations, and poisonous matters in bodies where they ought not to be. Of this we were forcibly reminded a few days since by an able lecture delivered by Mr. Crowther, Assistant-Curator of the Leeds Museum. He showed that there was something really captivating in chemical analysis, not the least interesting being those relating to minerals and metals when tested either separately, in combination with others, or when the ingredients of which they are composed were separated. A knowledge of metallurgy and of all that relates to the value of metals must be of the greatest value to all persons who have the control of mines, or who are owners of them, whilst no doubt in not a few instances it would have prevented persons being imposed upon. Two processes are generally adopted in determining the value of metals, the wet and the dry; the former by means of salts or acids in solution, the experiments being performed in test tubes, beakers, and flasks; and the other before the blow-pipe, as a piece of charcoal, platina foil or wire, a system extensively used by students in mineralogy. The commoner minerals are known to most persons at a glance, but metals in the pure state, excepting such as are generally employed, are quite unfamiliar. Magnesium, for instance, may be easily known when in its pure state by burning in the air with a bright blue light; zinc in a crucible does the same. The test to find magnesium in the wet way is by a solution of magnesio-sulphate, or Epsom salts, to which is added desodic phosphate, and ammonia chloride and ammonia hydrate. Barium may be tested by potassic chromate; with respect to lead and mercury their presence can be tolerably easily indicated. If a solution of mercuric-chloride and potassic iodine are put together the result is mercuric iodide as a vermillion precipitate and potassic chloride in solution; but if plumbic acid is added instead of mercuric chloride, then there is a yellow precipitate of plumbic iodide. The effect is very different, and knowing the colour it is easy to tell that the one is lead and the other mercury. Were it required to ascertain the exact amount of copper, sulphur, and iron in a piece of copper pyrites, after examining it qualitatively there is performed a quantitative analysis, weighing and separating very carefully, and then adopting either the wet or the dry process. Iron, the value of which varies so much, and the necessity for ascertaining all its ingredients in different localities is of so much importance, appears to be anything but difficult to test, but the different descriptions give valuable results that ought to be generally known. If in a tube there is placed a little Cleveland clay ironstone, a piece of Swedish into a second, and a fragment of specular ore from Cornwall into a third, and lastly some very pure carbonate of iron. The result not only shows how iron is tested for, but illustrates how it conducts itself when in the ferrous or ferric condition, a result obtained by the atomicity of the iron being altered by its being in combination with more bands of oxygen.

The specimens named represent three different states—first, iron in the ferric condition; secondly, in the ferrous; thirdly, in both these states. The clay ironstone, on the addition of potassic ferricjande, gives a blue precipitate known as Turnbull's blue (Fe 3, Fe2, Cy 12), or triferrous deferric docleana cyanide, the ferrous condition decidedly predominant. The Swedish, on the addition of potassic sulphocyanate, gives a blood-red coloration, which is due to the formation of ferric sulphocyanate, and is not destroyed by hydrochloric acid. Specular iron ore being also in a ferric condition, gives the red coloration of a ferric salt, whilst the carbonate of iron gives both, showing the presence of iron in two conditions. Copper gives some most interesting results when chemically tested. In testing a salt of copper along with ammonia carbonate or hydrate there is obtained one of the most magnificent blue phosphates known to the chemist, and as a test is very delicate. For tin a very striking test is the formation of the purple of cassius, which is produced when auric chloride is added to a solution of stannous chloride. A little metallic copper, it may be said, reveals nitric acid by the formation in the upper part of the test tube of the ruddy fumes of nitric oxide. That mineral, however, as well as others, are found in articles of food, and hence the necessity for their easy detection. In the examination of edibles the chemist frequently finds sulphate of copper in bread, lead in snuff, and red lead in Cayenne pepper, whilst sulphate of iron, carbonate of lime, and cream of tartar suit the taste or smell in beer, and nitrate of sodium in tobacco. With respect to metallic and other poisons, some of them require special tests. Hydrogen is prepared from pure zinc passed through a tube containing chloride of calcium to dry it, and is then put into a generating apparatus, when, if antimony or arsenic be present, the colour of the flame, instead of being blue, has a white appearance, and in passing a piece of porcelain against the flame an incrustation takes place. With arsenic this is very metallic, but with antimony it is blacker and barely metallic in appearance. If, however, a solution of chloride of lime be added the arsenic will be dissolved, but not so the antimony.

In another direction chemistry has of late years been successful in discovering the best means of separating the different compounds that are met with in waste salts. Germany is now about the largest producer of potash we have, the principal manufactories being at Stassfurd and Leopoldshall. At those places they make use, as primary substances, of the large deposits of refuse salts, or, as they are sometimes termed, "variegated bitter salts," which form the roof of the deposits of rock salt, and owe their origin to a natural process. In connection with the works named there is also produced chloride of potash, a large proportion of which is intended for the preparation of saltpetre, sulphate of potash, alum, sulphate of magnesia, boracic acid, and bromine—all the result of chemical research.

With respect to aniline, to which we alluded in the early part of this notice, it may be interesting to know that towards the close of last year its power as a dye was tested on a truly gigantic scale in connection with the Danube. The River Aach is a tributary of

the Lake of Constance, but the strata are so permeable that nearly all the springs and streams between its head and that of the Danube, which is rather higher, get lost and disappear. This being the case the millowners in the river a little lower down, to avoid stoppage, blocked up some of the holes to avoid too great a loss of water. The millowners in the Aach contended that this water was theirs, and as such a stoppage must injure them, as the water was the source of their own stream. The Baden Government appointed Prof. Kop to study the problem, for which he used common salt, a person being placed at the outlet to collect the saline solution: but M. Ten-Brinch conceived the idea of colouring the waters by means of fluoresceine, adding one part to 20 million parts of water. On October 9 he poured his solution into one of the holes, and on the 12th it made its appearance, having been 60 hours travelling the passages. The colouration of the river was superb, the whole being of an intense green, greatly enhanced by the sunlight, and lasting for upwards of 36 hours.

To the researches of our chemists we are, therefore, indebted for our knowledge of the composition of our minerals and the valuable products that have been evolved from them. By their untiring experiments they have not only brought to light hidden treasures of incalculable value, but they have also stimulated inventors to produce the requisite machinery and appliances for giving efficient and economical effect to them, so that all classes can be participators in the wonderful discoveries they have made.

MINERALS IN SPAIN.

Since the termination of the civil war Spain is once more becoming an important centre of mining industry, and some of the ports in that hitherto unfortunate country are now displaying an amount of activity to which for years they have been a stranger. Bilbao, in particular, during the last two or three months, has been particularly so, and large quantities of hematite ironstone have been shipped principally to England, there having been during the first seven months of the present year no less than 700,000 tons—three-fourths of which were to the United Kingdom. Several of the mines are worked by English capitalists, amongst them being Sir J. BROWN and other Sheffield ironmasters largely engaged in the production of BESSEMER steel. So extensive, indeed, are the deposits of iron that for ages to come there will be an abundance, however extensively it may be worked. At Frian, in Biscay, the iron has been taken for some hundreds of years, and vast quantities still remain. Messrs. IBARRE BROTHERS and Co. have extensive works, working up the ore in furnaces and rolling it into bars and other material. In Saragossa, also, there are also extensive deposits of ironstone, as well as other minerals, which only require capital to be profitably worked, and this, no doubt, will before long be introduced should the present tranquility prevail. In Guadalajera there are valuable silver mines, and salt mines at Tarzo. In several of the provinces there are extensive seams of coal, whilst some of the alluvial beds overlying the coal measures are impregnated with mercury, as well as hematite and antimony. In the coal field of the Asturias some of the beds are 10 feet thick, and are extensively developed, more especially on the southern shores of the Bay of Biscay. In the centre of the Asturias coal basin there are some 60 seams, most of them of good quality, the eastern limit being near to Santander. In Eastern Spain, in the provinces of Ternel and Castellan-de-la-Plana, good coal fields have been opened out, and some smaller ones in the valley of the Guadaloupe and in Catalonia. In Ternel, also, there are beds of coal, lignite, and jet, and these are being worked. Indeed, there is scarcely any mineral but what is found in Spain, and these, we believe, have now a much better chance than ever of being opened out. Perhaps one of the most singular formations is found in the province of Malaga, being an enormous mass of serpentine, 42 kilometres long and from 18 to 20 in width, lying between the Mesata de Ronda and the sea. A great deal of English capital is already at work in Spain, and there is very little doubt but what much more will now be introduced, seeing that there cannot be a finer or more valuable field for investment, whilst the country is within a comparatively easy distance for visiting and inspecting.

IMPROVED COAL-CUTTING MACHINERY.

Although a large number of coal-cutting machines have already been introduced, not one has yet come into general use. It is believed, however, that by the improvements not only in many of the parts, but also in the general construction of the machine now made by Messrs. J. GALLOWAY and G. MCPHERSON, of Hurlford, Ayrshire, the greater portion, if not the whole, of the difficulties have been removed. The machine is a portable cutter of the horizontal oscillating or radiating arm class, carrying the cutting wheel on its outer end, for being worked by compressed air (or other pressure fluid) along the face of the coal to undercut it, all of a more compact and simple construction with fewer working parts, which will work more steadily and regularly with less wear and tear of the machine and less waste of coal than by the hand cutting or by former machines, especially at the end walls, as the new cutting wheel, and its carrying arm are entered and withdrawn close up thereto and cut in both the forward and backward traverse, thus effecting a great economy of time and labour. Messrs. Galloway and McPherson have adopted a compact arrangement of a small portable double cylinder, carried on a low frame with four wheels, on rails to run along the face of the coal to be cut, and drawn on these from one end of the cutting to the other by a chain or rope and winding gear at the ends of the cutting, or by an automatic winding or drawing barrel and gearing, actuated on the carriage itself by the engine carried thereon—all so far much the same as in some other coal-getting machines of the same class heretofore in use. The novelty of the invention relates first to the general arrangement of the engine and driving gear for actuating the whole cutting mechanism, and consists of two cylinders lying at a considerable angle to the crank shaft, erected and working transversely in bush bearings across the centre of the machine, with the crank and connecting rods working and coupled close up near the outer bearing of the frame furthest from the face of the cutting.

The pistons and cylinders are fitted with trunks working out through stuffing boxes in the front or adjacent end covers, to give long connecting rods with the shortest possible length of frame or carriage, to which they are bolted down by angled flanges as low as possible at the ends, the crank shaft actuating the slide valves direct or through a guide bar by a pair of eccentrics near its other end or bearing, a small bevel pinion near the centre of the crank shaft actuating a bevel wheel below it, secured on the top of the short central solid driving shaft of a new construction and arrangement of cutting wheel and its cutters, and actuating gearing below on its carrying oscillating arm, which will hereinafter be more particularly described. This short vertical solid shaft is carried on the hollow central shaft or boss of the oscillating carrying arm of the cutter wheel, both carried in a strong journal bearing or seating in the lower central part of the carriage, close to the side next the face of the coal to be cut, so that the oscillating arm and cutter wheel could swing round equally towards both ends, and enter and cut out under the coal to the full length of the arm and diameter of the cutter wheel beyond this side of the carriage, the carrying wheels of which are inside the frame, those at the other side being outside the frame to give a broad basement and stability to the carriage on its wheels and rails. The oscillating arm of the cutting wheel is actuated to cut in and cut out of the coal at the beginning and end of its traverse respectively, as described, by a screw wheel fixed on or formed in one, with its hollow boss above the bearing and below the bevel driving wheel of the central shaft, so as to be actuated by a longitudinal or transverse screw shaft at the ends or outer side of the machine by a winch handle or hand wheel, this shaft being carried in a suitable frame or journal bearings projecting up from the carriage frame.

This appears to be one of the most important portions of the arrangement. These driving, level, and screw wheels and screw are all preferably made of cast-steel or malleable iron out of the solid, as well as the oscillating arm and its boss, carrying the new or improved construction of cutting wheel and cutters at its outer end on a ring eye bolted to it from the under side and through the eye of the wheel, much in the same manner as other cutter wheels are. The improvements in this wheel consist in having two sets of reversible cutters sunk into recesses on opposite sides of its outer broad rim, and bolted by countersunk-headed bolts and nuts passing through these and the rim from side to side, the ends of the cutters being broadened out and sharpened pick-wise, and projected forwards and laterally at their cutting edges so as to make a cut considerably wider than the wheel for the clearance of the arm and securing nuts of the cutters, the cutters being made with the broad cutting edges at their opposite sides and ends, so as to be easily reversed at the ends of the cutting and traverse of the cutting machine, to cut backwards again along the face of a fresh cutting of the coal. This cutter wheel is made with deep teeth and recesses all round the rim at the part where the cutters and bolts are secured, and of a pitch corresponding to the distance between the cutters, the recesses being formed in the spaces between the cutters so as to be actuated as a spur wheel by a corresponding spur pinion working into these between the cutters, and secured on the lower end of the vertical driving central shaft before mentioned, actuated by the bevel wheels above direct from the crank shaft of the engine.

The depth of undercut can be arranged to meet the requirements of the particular pit, character of coal, and so on, as this is a mere matter of detail. The diameter of the cutting wheel and its driving pinion would be made large enough to cut in under the coal to the distance or depth from the face and side of the machine desired, and although the crank shaft is described as set horizontally with the cylinders at an angle in a vertical plane, it will be evident that these might be reversed, the cylinders being set horizontally at an angle close down on the top of the carriage frame, with the crank shaft ranged vertically at the opposite side of the machine to the driving shaft of the cutter wheel, so as to drive it by spur gearing at the top instead of the bevel gearing before described, the other improvements being all the same as to the mode of actuating the cutter wheel, and the construction and arrangement of the cutters and mode of swivelling the carrying arm past or outside both ends of the carriage, so that it can be made to cut in both directions of its forward and backward traverse along the face of the coal. The results obtained with the machine will be published in a future number of the *Mining Journal*.

UTILISING WASTE MINERALS—DEVONSHIRE WARE.

For several years past the Editor of the *Mining Journal* has offered annually, through the Royal Cornwall Polytechnic Society, three premiums in books for the "best papers, by practical miners or others engaged about mines, upon a method, mechanical or chemical, of making marketable, with commercial advantage, ores or minerals raised from mines in Cornwall or Devon, and hitherto regarded as worthless. The books shall be chosen by the writer of the paper. In the case of mechanical methods not in actual use, it must be demonstrated that the apparatus is simple, durable, and not liable to get out of order. In the case of chemical methods not in actual use, samples of the products in the various stages must accompany the paper, in proof of the practicability of the process." Many valuable papers have been sent in from time to time in competition for these premiums, and in connection with the society's exhibition just held the judges have made an award which will give very general satisfaction. The first premium has been awarded to Messrs. Candy and Co. (the Patent Brick, Tile, Pipe, and Pottery Company), of Chudleigh-road Station, Newton Abbot, Devon, for a new manufacture which is likely to come largely into favour, and to form the basis of a new industry of considerable importance.

The detailed description of the whole process must be reserved for another opportunity, but the general character of it will be readily understood from the perusal of the particulars upon the entry of the exhibit, which embraced an attractive collection of 40 or 50 specimens. The articles shown were—"Vitreous and other bricks, tiles, and pottery ware made from the top, and hitherto considered worthless, clays, which have to be removed and thrown away in working for the Devon pipe and potter's clays. The exhibitors, by means of patent machinery and kilns (model of the kiln exhibited therewith by Thomas Carder, the inventor), have been able to successfully and economically manufacture a variety of descriptions of superior bricks, tiles, &c., and they are now turning out from these refuse or rejected clays over 60,000 bricks per week by their patent process, and find a ready market for these vitreous and other bricks and productions. Specimens of the new vitreous pottery, which is burnt and enamelled and the glaze and colours fixed all at one and the same firing. This ware, which the exhibitors propose to call Devonshire Ware, furnishes a new, cheap, and artistic pottery of endless variety, as well as a strong non-porous ware for domestic and culinary purposes." It is understood that the simplicity and cheapness of the manufacture will enable the articles to be brought into the market at a price which will ensure their extensive adoption.

A NEW MINERAL.—Just before leaving Europe to attempt the North-East Passage, Professor Nordenskjöld sent to the Paris Academy of Sciences an account of a new mineral recently found in Sweden, and which he has named Thaumasite ("the wonderful"). Professor Nordenskjöld's paper was read at last week's meeting of the Paris Academy, and he states that the mineral has been carefully studied by his assistant, M. G. Lindström. Thaumasite has been met with in (1) specimens brought by Professor Nordenskeöld from the Gustav and Carlsberg Mines, or the Bjelke Mine at Areskustan, in 1859; (2) specimens of an old Swedish collection from the same mines 100 years ago, by M. Polheimer, mining engineer; (3) other specimens brought from the same mines this year, at Professor Nordenskjöld's request, after the analysis of Nos. 1 and 2 had shown the strange composition of the substance, which contains at once silicic acid, carbonic acid, and sulphuric acid. The microscopical analysis shows that the mineral is a genuine new species, and not a mixture. It appears to Professor Nordenskjöld that the curious composition of the mineral is very important for a knowledge of the transformation which the materials of rocks undergo, and he is convinced that thaumasite will be found in other mines when once the attention of mineralogists has been drawn to this interesting substance.

GOLD MINING IN AUSTRALIA.—We are favoured by the Secretary for Mines (Mr. Thomas Couchman) with the usual reports of the Mining Surveyors and Registrars for the quarter ended March 31. It appears that there were 37,541 miners employed, of whom 13,183 Europeans and 9640 Chinese were engaged in alluvial mining, and 14,591 Europeans and 127 Chinese were engaged in quartz mining. The approximate value of the mining plant in use was 1,941,495*l*. The number of square miles actually worked upon was 1205, and the number of distinct quartz reefs known to be auriferous was 3357. The estimated yield of gold during the quarter was 168,427 ozs. 15 dwts., of which 63 555 ozs. 14 dwts. was obtained from alluvial, and 104,872 ozs. 1 dwt. from quartz. The quantity of gold exported was 72,187 ozs. 13 dwts., in addition to gold specie from all sources of the value of about 357,608*l*. The summary shows that 192,436½ tons of quartz crushed yielded 85,996¼ ozs. of gold, or at the rate of 8 dwts. 22·50 gr. per ton. From 7950 tons of quartz tailings and mullock 809¼ ozs. of gold were obtained, or at the rate of 2 dwts. 0·86 gr. per ton. And 1045¼ tons of pyrites and blanketing operated upon 2638½ ozs. of gold, or at the rate of 2 ozs. 10 dwts. 11·62 grs.

COPPER.—Messrs. Richardson and Co. (August 31) write—The stocks of Chili copper produce remaining unsold at Swansea on Aug. 1 were—Ore, 1622 tons; regulus, 7646 tons; copper, 2677 tons. There have been no arrivals, and the private sales have been—Regulus, 739 tons; copper, 312 tons. The present stocks are—Ore: Chili, 1622 tons; Cape, 286; Newfoundland, 760; New Quebrada, 807; Spanish, 848; Italian, 1209; Portuguese, 346; British, 90; total unsold at Swansea, 5908 tons; regulus, 6907 tons; copper, 2365 tons. These totals represent about 7340 tons fine copper. One sale only of Cape ore has taken place during the past month—510 tons on the 21st—which fetched an average of 11s. 10½d. for 30½ per cent. A cargo of Chili regulus "on spot" has been sold at 12s. 3d. per unit. The "Wallaroo" sale on Aug. 20 of 766 tons in cakes fetched an average of 69*l*. 18s. The Chili charters for the first fortnight of this month are advised as 1700 tons bars and ingots and 50 tons pure in ores and regulus for England, and 250 bars for France. A fair business has been done during the month, although values have been nominally unchanged; as we write there is an improved demand.

RICH DISCOVERY OF LEAD ORE IN CARDIGANSHIRE.—A very fine course of ore has been discovered at the Ynys Mine, about three miles from Ynyslas Station, in an old working which was drowned by an inroad of the sea about 60 years ago. The ore is on a north and south lode, or, rather, where two such lodes running at but a very slight angle come together and form one lode. The lode is estimated as worth 5 tons of lead to the fathom in length of the lode, which is about 10 ft. wide.

REPORT FROM CORNWALL.

Sept. 4.—There has rarely been a blacker week in the annals of Cornish mining than the present. The fall of 2*l*. in the tin standards which we reported the week before last has been followed in less than a fortnight by another drop of equal amount, and now we see the figures brought down to 53s. and 54s. Of course this is utterly unprecedented, and we may fairly add unexpected also. Why when trade is beginning to revive in all other directions mining should enter upon a career of increasing downward rapidity is not easily to be explained. It is not, indeed, to be explained at all by ordinary business considerations, and it strikes us that we must look beneath the surface for the cause of this—we had almost written—deathblow to all enterprise. One thing is quite certain, this state of things cannot last. There is no part of the world in which, unless under the most exceptional circumstances, it will pay to raise tin at the present prices. While there is a margin low prices of course have the effect of stimulating production, but where there is no margin all stimulus to production disappears. It is inevitable, therefore, that under present conditions there must be a very speedy adjustment of supply and demand. Consequently we have now reached what may fairly be regarded as the final crisis. Unless there is a speedy improvement, it is not Cornwall only but the tin mining districts of the whole world that must suffer, for the pinch is now too great for any of them to bear.

The announcement of a 20*l*. call in Carn Brea is not gratifying or encouraging by any means, and will contribute its share, together with the call of 30s. in the sister mine—Tincroft—to the gloom of the present outlook. After all, however, things here are not so bad as they seem. Everybody knew that Carn Brea was a long way in arrears, and the call is only a means of advancing the money needed by the adventurers instead of continuing to draw from the bankers and pay interest. On the other hand, both in this mine and Tincroft the reports are excellent—indeed, they were never better, and so far as the actual workings at Carn Brea are concerned the mine during the past six months has more than paid cost. Mr. Basset has offered to give 1000*l*. towards the provision of boring machinery here, so as to do away with the need of contracting.

Since we last wrote another exhibition of the Royal Cornwall Polytechnic Society has been brought to a close. The issue is an additional proof of its growing popularity. On no previous occasion has the exhibition been attended with such success, and there never was at Falmouth so good a collection of drawings and paintings, and rarely such a noteworthy mechanical department, as formed last week's exhibition. Nor have the society's efforts ever been so largely appreciated by the public. The attendance throughout exceeded that of any year in the history of the society. Visitors came from all parts of the county, and there can be no question that the exhibition has given satisfaction to the traditional "One and All." In the Fine Art Department there has been a number of sales effected at fairly good prices. The Art Union, too, has also been the means of distributing a number of the pictures shown.

We are inclined to regard the exhibition as likely to be of unusual value to the mining public in several particulars, and not the least among which we would place the attention that has been directed to boring machinery, alike in the address of the President and in the exhibition itself. For one thing, we would especially call attention to the application of hand power to boring mechanism, as seen in Jordan's rock drill, which Mr. R. Taylor described as a "tool" rather than a machine, and which can be used in any mine under any conditions, without the need of complicated mechanism. We need all the aids art and science can give.

REPORT FROM NORTH WALES, SALOP, AND CARDIGAN.

Sept. 5.—I would just observe, in reply to my friendly critic "Engineer," that my reference was to the Van machinery as it now is, not as it was, in an embryotic state. I presume that the old machinery did its work as well as any other mining machinery, and that the recently erected machinery for treating the waste heaps now does what no other machinery can do. Its erection, including steam-engine, work intended to be remotely beneficial, and the sheds cost, I am told, about 5000*l*., and it now makes a profit out of the waste heaps of 6000*l*. to 7000*l*. per year. If there is better machinery I should like to know where it is erected, for I would certainly go and see it.

I do not intend to enter into the matter in dispute between the Pandora Mining Company and the Mineral Corporation of Great Britain, but in reference to the remarks of Mr. Crofts relative to the depth of the mines in the Llanrwst district, it may interest some of the readers of the Journal if I give the approximate depths of some of them. These are—Clementina, 100 yards; Pandora, 60 yards; Fridd, 60 yards; Bettws-y-coed, 60 yards; Llanrwst, 60 yards; Coedmawr Pool, 56 yards; Cliff, 45 yards. Although the shallowest but one, the Coedmawr Pool, reaches strata below those reached in the other mines, it is situated nearer the outcrop of the series of strata, and the other mines, which lie on the summit of the hill, and on the stopes leading down to Llanrwst, have a covering of newer strata. They have all probably to sink lower to reach the best lead-bearing beds. Still there is always a limit to productive depth. From observations that have been made in the deep adit that was intended to drain Coed Mawr and the old Pencraig mines we know that below the present workings of the former mine there lies 20 yards of the productive bluish-grey rock of the district, below which comes the blue-slate rocks in which mines have not been profitably worked. These remarks will show the necessity there is, as I pointed out recently, for a careful survey of the district, the different mines acting in harmony to form a detailed section from north-west to south-west, showing productive and unproductive strata, the stratigraphical depth of the different mines, dip and direction of the lodes, and other information of practical use. If I were to mention the name of a man likely to supply this want I would suggest Mr. W. H. Roberts, formerly of Coed Mawr Mine, who has been born and reared in the midst of the mines, and who was intimately acquainted with them before their conversion and baptism into new names.

In Cardiganshire a party of Aberystwith tradesmen have commenced working the old Pwll Roman Mine with a view to its sale. Operations have been resumed also at Taliesien Mine with the same end in view. Carn Dwr Bach is being resuscitated, and Court Grange is said to be yielding 36 ozs. of silver to the ton of ore. May I ask is this the proportion of silver to the bulk of the ore, or only of selected examples? I have not been able to pay my promised visit to Blaen Caelan, but I hope to do so before the summer closes. The ruinous condition of the mine works in the northern part of the Cardigan lead mining district would not impress a stranger very favourably. Of course the new works are an exception, and the new dressing machinery at Court Grange is intended to be among the best in the county.

Talking of the depth at which mines may be profitably worked, I see that some of the projectors and agents in the counties of Flint and Denbigh need a word of caution on this point. The productiveness of the mines of this region depend upon the presence of certain strata, and the simple thing to do is to ascertain the depth of these

productive beds from the surface. This can always be easily done, and if it were done it would save a great deal of costly floundering about in unproductive beds, and much illusion respecting mineral riches to be attained in depth.

It is gratifying to note the improved returns from the Clogau Gold Mine. This is the mine in which the rich bunch of gold was discovered that led to the Welsh gold fever, the wrecks of which may be seen everywhere in the neighbourhood of the mine. It was one of the first mines opened, and it is now probably the solitary survivor of the many that were started. I should like it to pay: 307 ozs. of gold this year to the end of July looks encouraging.

The Plas-yn-Wern Brick and Fire-Clay Works and the Garth Trevor Stone Quarry Companies are wise in their generation. They lately invited a party of builders from Liverpool and elsewhere to inspect their recently completed brick works and the re-opened stone quarries at Garth Trevor, both of which are worked on the property of Mr. G. H. Whalley, M.P. For docks, steps, coping, and other work where durability and imperviousness to wet are required perhaps the Garth stone, which belongs to the uppermost beds of the millstone grit, is one of the best in the kingdom. I wish the new companies and their customers success, and hope Mr. Whalley, who is seriously ill, may recover to enjoy the results of the successful working of his minerals.

REPORT FROM NORTH AND SOUTH STAFFORDSHIRE.

Sept. 5.—Coal keeps cheap, yet is in less demand at leading collieries of long standing than has been the case at this season for many years past. The small make of iron, both crude and finished, and the considerable output from new collieries, are exercising an influence wholly exceptional in the modern history of the Staffordshire coal field. Prices are not yet improved, though at the domestic collieries there is talk of quotations being advanced a month hence. The working hours at the collieries are being steadily made to begin at seven instead of six, and cease daily at four instead of three. So long as they could the men resisted the alteration, even to the length of a few days strike, certain of them at the Sandwell Park Colliery.

The blast-furnaces going have not been increased in the week and the prospects do not tend to an early change for the better. Prices are kept down by the competition from Derbyshire and West Yorkshire, and from the hematite districts. The prices sought and obtained for the iron of those districts are not stronger than at an earlier date since Quarter-day. Without any alteration in open market quotations, there is yet an indication of weakness in prices, which is seen in actual business.

Finished iron is being rolled in a somewhat diminished aggregate upon the week. High-class firms have less to do. Mills at such places are being wholly laid off a week together. A few new orders have come to hand in the fortnight, but they are for only small quantities. The orthodox prices of 9*l.* 2s. 6d. (Round Oak) and 8*l.* 10s. (B8H and similar brands) are obtained in such cases for bars. Medium sorts are to be obtained at 7*l.* 10s. and 7*l.* 5s., and common down to 6*l.* 10s. and 6*l.*; and in exceptional instances, for inferior qualities, at a few shillings under that figure. The minimum quotations are, however, slightly advanced upon the week.

Shares in local coal and iron concerns do not improve in value, nor are they in more frequent sale. Few shares upon which there are calls can be got rid of scarcely as a gift if the property is mineral and undeveloped. And concerns which do not yield a good present profit are in smaller favour. Patent Shaft and Axletree shares sold on Tuesday at 1¾ dis. Chillington Iron Company's 10*l.* shares are offered at 3*l.* 10s. For the Patent Nut and Bolt shares, on the other hand, there are buyers at 7*l.* prem.

The wrought nail forges keep up their agitation, and are passing resolutions that inasmuch as their masters will not accept their reduced offer they will revert to their original demand, and go in at no other. The force of their movement is diminished by the return to work of the Bromsgrove hands.

The creditors of Messrs. Lister and Co., of the New Lane Colliery, Pelsall, accepted on Saturday, in Wolverhampton, a composition of 2s., to be paid in two months, and 1s. to be paid in the month following. The liabilities were 563*l.*, and the assets 56*l.*

Business is without much improvement in North Staffordshire at either the collieries or the ironworks. Pits and mills usually on are standing, and prices are unremunerative as to most of the fuel and the iron which is being supplied to the markets.

The directors of Muntz's Metal Company, at their meeting on Thursday, resolved to declare an interim dividend at the rate of 10 per cent. per annum out of the ascertained profits of the six months ending June 30, payable on Oct. 1, free of income tax.

REPORT FROM MONMOUTHSHIRE AND SOUTH WALES.

Sept. 5.—During the week another great "find" of coal has been made in the Rhondda Valley—that rich mineral district of Glamorganshire. This time it has taken place at Dinas. After two or three years' persevering efforts Messrs. Rowlands and Morgan have succeeded in coming to the valuable six-foot seam of steam-coal. In sinking for this they also came across the "two-foot nine" and the Aberdare "four-foot" seams.

The case of the Fernhill hauliers has already been alluded to in the columns of the Journal. It was tried at Pentre Police Court, and involved the legality of deducting half a day's pay. The stipendiary has now given his decision in favour of the men. At the same time, he stated that he did not arrive at his conclusion upon the general custom for the valley, for he found this varied, but dealt with the case as he should with others, as to the circumstances and the rules adopted at the various collieries.

The Alexandra (Newport) Dock Company have held their half-yearly meeting in London, at which Mr. J. C. Parkinson presided. After making due provision for interest on debentures, dividends were declared at the rate of 6 per cent per annum on the first preference and 8 per cent. on second preference shares. A considerable balance is still left to be carried forward. A local paper, commenting on the company's position, says its financial success has been far beyond expectation. The capital expended is nearly 600,000*l.*, but a considerable portion of this was naturally unproductive during the past half year, the works not having been completed. In the face of this, however, the dividends paid cover two thirds of the capital. All future increase will go to the ordinary shareholders, who have a capital of 200,000*l.*

There seems now no doubt that Newport will have a metal market in connection with the new Tredegar Memorial Exchange opened yesterday. The subscription for members is fixed at 1*l.* 1s. per annum. The Penarth Dock and Railway Company's half-yearly meeting has been held during the week. The usual dividend of 4½ per cent. was declared. In reply to a question the Chairman stated that there was no proposal now before them to extend the dock, so that the present want of adequate facilities complained of by freighters will have to be put up with for an indefinite period.

The Iron Trade—although there is certainly enhanced activity at some of the works—shows few signs of improvement this week. There are not over many rail orders in hand, but this department is by no means in that state of collapse which some would like us to believe. It is true, though, that steel rails are growing in favour day by day. The worst obstacle which masters have to face is the continued lowness of quotations. There is still a little better demand for merchant iron, but Belgian competition is evidently injuring our bar trade. Pig-iron is a shade easier. Clearances have not been over large this week, and have been mainly to Portugal and Brazil. The steelworks are fairly employed, and there is a moderately good demand for rails, but at prices which, to say the least, must make it exceedingly difficult to secure any profit.

As to the Tin-plate industry but little fresh can be said. Despite the low quotations most of the works in the western portion of the district are going full time. As to the Rhiwderin Works, near Newport, there seems to be every probability of the establishment going on permanently, although no definite settlement has yet been arrived at.

The Coal Trade has also but little altered. Although prices are unchanged they are a little firmer this week. There exists a moderately good demand for steam coal, and large quantities are brought to bank. The enquiry on foreign account is fairly brisk. As to the house coal department, there is a slightly enhanced enquiry. In all probability, from what has of late been going on at Pengam and Blackwood, this portion of the district may, at no distant date, become a great centre of production for house coal. There is a steady demand for best anthracite. The patent fuel department must, as usual, be reported as dull, although during the last few days the demand appears to have slightly improved.

REPORT FROM THE FOREST OF DEAN.

Sept. 5.—In times so depressed, irregular, and fluctuating as the present it is difficult to state anything which should give character to the condition of trade in a district like this, seeing that mere spurts are so apt to deceive us. A few orders may arrive at certain collieries and other works which, perhaps, require to be promptly executed, and, as a consequence, there is increased activity, indicating more full and regular work for the workmen, and longer and heavier coal and other trains daily running over the lines out of the district, all of which symptoms give buoyancy to hope, so that expectations are raised that trade is surely reviving in such a measure as to lead to permanence; but by the time that such evidences are made public in the professional and other journals less satisfactory symptoms have again returned, which tantalise and shake our confidence. This has been the case lately. We were cheered by apparent returning prosperity to a colliery which has undoubtedly suffered as much or more than any in the Forest, and the workmen also more than others; but all at once a spurt of trade and activity was witnessed, which led parties at once to conclude that the worst was passed, and days of prosperity had arrived. Too literally, indeed, became the phrase "days of prosperity," for the spurt scarcely extended to weeks ere it was over and gone. Such are, more or less, the fluctuations of trade in Dean Forest. People, however, are very generally expressing their hope and belief that trade is somewhat looking up, and yet, so far, the improvement in the coal and iron industries has been so moderate as scarcely to benefit the general body of workers or the shopocracy. Still, we think that the symptoms at present are hopeful of the future, and that our staple trades will now gradually revive.

We yesterday visited Mr. Jacob Chivers's new tin works in course of erection, and the progress already made is certainly very creditable to the enterprise and activity of those who are conducting the operations, but we still doubt their being ready for manufacturing operations on next New Year's Day, as the promoters profess to expect. The plans of the proprietor, however, clearly indicate that he has got "a head on his shoulders." He has had his railway from Hawkwell Colliery to the tin works so constructed that it answers for a siding tip into the trucks for outward trade being brought close alongside of the Great Western line to Church Way, as well as for his supply of the tin works. At the time or our visit the men were just commencing digging for the pond or reservoir for water supply to the works. It would be well if other coal proprietors would take a hint from Mr. Chivers's proceedings, and "go and do likewise," by becoming their own customers for coal, instead of depending so entirely upon others. Mr. Chivers in manufacturing tin, and having a colliery close by, will obtain fuel at cost price, and thereby secure profits to a greater extent upon tin, and keep both colliery and tin works going at the same time. If other proprietors would introduce manufactures or some kind in connection with their coal works we think they would be more certain of dividends or returns for outlay.

The Great Western Iron Company by reconstituting the company, changing its name, and extending its membership and capital, as well as its objects in manufacture, have done well, as at present there is no steel manufactory in the Forest, and by calling it the Severn Steel, Iron, and Mineral Company (Limited) the company is more definitely associated with the district when spoken of or referred to in print. Most of the influential proprietors of the old firm are proprietors in the new one. It was registered last week with a capital of 200,000*l.* It comes before the public in a very hopeful shape, and we earnestly wish it success as soon as it may be able to commence manufacturing operations. The plant has already been improved and extended, and other improvements are contemplated. The hopeful tone of general improvement already specified extends to the other industries besides those mentioned, but the change for the better is so limited that it is needless to further refer to it.

REPORT FROM DERBYSHIRE AND YORKSHIRE.

Sept. 5.—In the lead mining districts of Derbyshire there has been no change for some time past, everything appearing to go along quietly. But there has been no marked increased production in the output of ore, though it is to be hoped that before long more capital will be expended in the county, for, as we have before pointed out, there are far worse places for investing in mining property than in Derbyshire. Those who are now making any headway at all in connection with lead are those who have plenty of capital at command, and are able to put down machinery and other appliances irrespective of cost. Ironstone mining is now far more neglected than it was a few years ago, owing, no doubt, to the low price at which it can be purchased or worked in Northamptonshire, from which large quantities are daily brought by the Midland Railway, that company giving a very moderate rate between the two counties. Rather more has been done in pig-iron with former prices, but not to the extent of leading to any more furnaces being put in blast. The foundries continue to be tolerably well employed in most places, but Dronfield is quieter than it has been; but the Bessemer rail establishment at that place is as busy as ever. Of late the Midland has taken a full average tonnage of coal to the Metropolis, but the prices are still unremunerative, and of this we had the strongest proof at the meeting of the Boythorpe Colliery Company, at Birmingham, on Thursday. It was then stated that, despite the greatest economy, the year's working had been carried on at a serious loss. Yet there appears to be an agitation springing up for demanding an increase of miners' wages, owing to the improvement which is alleged to have taken place. But whatever improvement has taken place it has in no way affected the price of coal, which is still as low as it was during the summer months. Steam coal has gone off rather better, but at the old rates, and to those at all acquainted with the trade it is evident that 6s. per ton for the best "hards" cannot be remunerative. At Unstone a number of miners are still on strike on the wages question, and there are no signs of a settlement in that quarter.

The Associated Chambers of Commerce brought their visit to Sheffield to a close on Saturday, and the reception accorded to the visitors could not have been otherwise than pleasing, for genuine Yorkshire hospitality was the rule at every place. The visit to Chatsworth was in itself a treat of no ordinary character, whilst the "spread" in the park was truly delightful, the viands being superb and plentiful, whilst a charm was lent to the handsomely decorated tent by the many ladies who were present in elegant costumes. On Thursday a large party went to the Cyclops Works to witness the rolling of a large plate for Her Majesty's ship Agamemnon, which when planed was about 5 feet in thickness, although double that thickness when taken from the furnace. The Bessemer side of the works was also visited, and the rolling of rails witnessed. The rails being put through the rollers were for the Russian Government, one order being for no less than 17,000 tons. The old mode of milling steel was also shown, and evidently gave much satisfaction and pleasure.

So far as regards trade in Sheffield, there has certainly not been much change, but at the same time it cannot be said that there has been any improvement. Armour-plates are still in the ascendant at the two great works in the town, and Bessemer rails are as active as they ever have been, and are likely to be still more so, for the day of the iron rail has passed away, unless, indeed, it be for collieries and tramways. But even in those instances the steel will be found to be the most economical. Cast-steel is still in but moderate request, except for special qualities, but Bessemer is now being largely used by cutlery manufacturers and others who did not at one time think it could be made so as to meet the required tenacity and other qualities necessary for turning out table and other knives. Boiler and ship plates are still in but moderate request, but the workmen are kept tolerably well going, but not to the extent they were a few weeks since. In the best qualities of table cutlery there has been a fair amount of business done, but secondary and ordinary qualities are still very dull, whilst there is plenty of room for improvement in all branches. Makers of malleable material are fairly off for business, as they have, indeed, been for a considerable time past.

The Coal Trade of South Yorkshire is much the same as it has been during the last week or two, steam qualities still going off freely, but without any alteration in price. A considerable number of miners are still on strike, and there does not appear to be much likelihood of a settlement being come to. A deputation from the men on strike at Dodworth waited a few days ago upon the directors at the meeting held in Manchester, and wished to know what terms they proposed. The reply was that they had nothing to offer, and that the deputation had not been invited to Manchester. At Wharncliffe Silkstone the houses occupied by some of the workmen have been ordered by the magistrates at Barnsley to be given up. Work has been resumed at Denaby Main; terms have been come to.

TRADE OF THE TYNE AND WEAR.

Sept. 5.—There is little change to notice in the state of trade here complaints are pretty general of depression, and the difficulty experienced in making profits in any branch. The chemical trade, which revived a little time ago, has again fallen into a very depressed state, and prices have fallen off of late. The Coal and Coke Trades are without material change, and many of the miners are badly employed, and find it very difficult to live on the small wages earned. The Unions in this district have paid large sums towards the support of miners unemployed, otherwise many of them would have been compelled to apply for parochial aid, but owing to the relief afforded by the Union funds only few have been obliged to resort to this course. In Northumberland the coal trade has become exceedingly slack in some localities, and more works will certainly be closed soon. In former times the approach of winter caused little apprehension, as the hard coals were stacked up in large quantities to be in readiness for the spring shipping trade, but there is so little confidence in the trade at present the masters will only work for immediate shipment. Further reductions in wages are likely to be demanded. At Acomb Colliery, near Hexham, the men have come out on account of a dispute with the masters; it appears that the men are requested to cast all the small coals aside underground, and only send the round merchantable coals out. There is also some dispute as to the rate per ton, and the men are unwilling to accept the terms offered. This system of leaving all the small coals underground is coming into opertion at all the steam and house coal works. In former times immense quantities of small coal were left in the collieries here, and consumed at the pits on the surface, and the practice is now again becoming general.

Owing to the great depression in the Lead Trade the Landore Lead Company, whose mines are situated at Teesdale, have informed their superintendent that they intend to discharge a large number of their workmen of all kinds, though the exact number is as yet unknown. This company, one of the oldest in the kingdom, has long afforded employment for the bulk of the population in Upper Teesdale. Some of the mechanics have already received their notices, and the announcement has cast a gloom over the entire district.

The Miners' Permanent Relief Fund has been very successful here, and has proved of vast benefit to the miners and their families in this district; the total number of members is about 70,000. It is, therefore, much to be regretted that a serious dispute has taken place lately amongst the members. The original fund was to provide relief for the families of men killed by accident, or for the men themselves if permanently injured. The main funds are only applied to this purpose, and the society is in a most flourishing condition, or at any rate it is quite solvent, but other funds have been started, and one in particular for the support of old and superannuated members, and this is supported by special contributions, and is not connected with the main fund. Until lately 6s. per week was paid to old members on the fund, but it was found that the funds would not admit of this, and the payments have been reduced to 3s. per week. This fund (that is, the old men's fund) was got into working order in 1874, the subscriptions of members being raised from 5d. to 6d. per fortnight, but the number of applicants have far exceeded expectations, having averaged one per day since the month of January, 1875. During the last two years there have been 750 applicants, and at the present time there over 1000 "old men" on the books. The payments up to June last amounted to nearly 27,000*l.* It was found that the payments of 6s. per week could not be maintained if the "old men's" fund had to be self-supporting; hence the reduction. This has caused much dissatisfaction, and a party strenuously advocates the amalgamation of all the funds, and the payment of 6s. per week to be continued; but this would be extremely imprudent, and if carried it might lead to the failure of this valuable institution, as it has been clearly shown by the report of the actuary that the balance in hand in March, 1877, was all required for the original objects of the society. It would be well, therefore, if the members who lead this agitation would cease their opposition to a course of action which has been reluctantly forced upon the executors of the Permanent Relief Fund.

A general meeting of the North of England Institute of Mining and Mechanical Engineers will be held on Saturday, when, as usual, a number of gentlemen stand for election. The following papers will be read:—"Brief Notes on some of the Sections of the Carboniferous Limestone Series of Northumberland," published in the first part of the "Account of Borings and Sinkings," by Mr. G. A. Lebour. "Mining at Saarbrucken, with an Account of the Structure of the Coal Field," by Mr. Arthur R. Sawyer. The following paper will be open for discussion:—"The Telephonic Ventilator Tell-Tale," by Mr. Henry Hall.

The market at Middlesborough on Tuesday was fairly attended by pig-iron producers and merchants, but the tone was not so good, and makers finding that there is a slackness of demand are not in all cases so firm, so that buyers report they are able to purchase No. 3 at 39s. to 39s. 3d. Forge iron, however, being scarce still commands 38s. 6d., less the commission. These rates are for early delivery. Not much is being done for forward account. Some of the makers who are well sold do not at all relax their rates. The pig-iron shipments have been pretty good, though the deliveries to Scotland for the last fortnight do not show an average. Foreign consumers do not purchase so readily as expected, as the Eastern Question being still to some extent open is considered to block the way. At least this is the cause which is set down as the primary one to account for a somewhat quiet demand. There is on the one hand every inducement for foreign consumers to purchase, as iron is at a low figure, and freights are at an easier rate than has been known for a very long period. Germany is the best continental customer for Cleveland pig-iron, being comparatively near at hand, and the introduction of pig-iron duty free stimulates that class of trade. The local steel trade is brisk, and it is expected that a fair demand for rails will be rife next year, while there seems no reason to anticipate that during the present year there will be any deficiency of work in this district. The bar trade has not yet shown any improvement, but an extra demand is looked for by the end of the present month. The prices of ship-plates are pretty firm at 6*l.* 5s. Bars unaltered. Angles rather weaker, at 5*l.* 10s. to 5*l.* 12s. 6d.

PANDORA.—In our report of the proceedings of the general meeting, which appeared in last week's Journal, the Chairman was made incorrectly to state that the deep adit from the Hafna would come in at 5 fathoms below the "bottom level" at Pandora shaft; it should have been 5 fathoms below the *surface*. We are glad to learn that all the 700 shares have been subscribed for, and that the directors have already taken steps to secure a suitable steam-engine, which it is hoped will soon be at the mine and ready to be worked.

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Trellynia is the focus or concentrating point of a number of well known lodes running through two of the adjacent mines, and as such junctions are invariably very productive, it is only reasonable to expect a large body of ore will be found when the new works reach the point of intersection of the lodes.

The bottom of the mine being more productive than the shallow levels and pits, and there being many indications of increased richness as further depth is attained, it has been decided to sink the shaft below the 60 yard level and drive in the direction of the junction of lodes; to do this advantageously improved winding apparatus is required, and to provide it the shares now offered have been issued.

Trellynia is not a new or purely speculative mine, nor is it an abandoned mine, the working of which can only be resumed at great cost; but it is a fairly remunerative undertaking, needing only a little further capital to make it a great success.

During many years experience in mines, mining companies, and other industrial ventures, Messrs. THOMAS BROTHERS scarcely remember a more favourable opportunity for a small, permanent, and profitable investment, and, therefore, confidently recommend it to your serious consideration.

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Enjoying unequalled facilities, is enabled to furnish RELIABLE INFORMATION respecting MINES in AMERICA.

A detailed Special Report, based on inspection, furnished of any mine in the United States or Territories upon receipt of £5.

GOLD, SILVER, COPPER, IRON, COAL, MICA, and CORUNDUM MINES in VIRGINIA, NORTH CAROLINA, GEORGIA, and SOUTH CAROLINA for sale at bed rock prices.

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COPPER KNOB MINE.

TRUE FISSURE VEINS, carrying GOLD 1¾ ozs.; SILVER 18 ozs.; COPPER 40 per cent., as per three assays made by well-known and eminent assayers.

ONE-HALF INTEREST in this very VALUABLE PROPERTY, situated in ASHE COUNTY, NORTH CAROLINA, U.S. AMERICA, can be purchased on the most reasonable terms. One hundred and sixty acres well wooded and watered land: country settled by industrious farmers and mechanics; labour cheap; 17 miles from the celebrated "Ore Knob Mine," where 2 tons of ingot copper is made per day; good roads, stores, churches, and schools in the vicinity; postal facilities at the mine.

For further particulars, address—

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Practical Instructions for Testing and Assaying, by Blowpipe, Chemicals, Crucible Scorifier, &c.

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In England—The London *Mining Journal*, and leading Cornishmen.
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THE HENSBARROW GRANITE DISTRICT AND THE CHINA CLAY TRADE, with MAPS and PLATES.

Price 2s. 6d., post free.

A GEOLOGICAL DESCRIPTION AND A TRADE HISTORY,

By J. H. COLLINS, F.G.S.,

Honorary Secretary to the Miners' Association of Cornwall and Devon.

Truro: LAKE and LAKE, Princes-street.

In the Court of the Vice-Warden of the Stannaries. Stannaries of Devon.

IN the MATTER of the COMPANIES ACT, 1862, and of the FRANK MILLS MINING COMPANY.—TENDERS will be received by the Official Liquidator of the said company, addressed to him at the Stannaries Court Office, in Truro, in the county of Cornwall, on or before Wednesday, the 18th day of September next, stating the HIGHEST PRICE which will be given for all the INTEREST of the company in the LICENSES or AUTHORITIES under which its MINING OPERATIONS have been carried on at the FRANK MILLS MINE, in the parish of Christow, within the said Stannaries; and also for the whole of the VALUABLE and EXTENSIVE PLANT, MACHINERY, MATERIALS, and EFFECTS, now being in and upon the said mine and belonging to the said company.

To inspect the above, apply to the Bailiff in charge of the said mine; and for further particulars to the Official Liquidator of the said company, at the Stannaries Court Office, Truro.

HODGE, HOCKIN, AND MARRACK, Truro
(Solicitors for the said Official Liquidator).

Dated Stannaries Court Office, Truro, August 31, 1878.

HINGSTON DOWN, IN THE COUNTY OF CORNWALL.

IMPORTANT SALE of a VERY VALUABLE FIRE-BRICK and FIRE-CLAY WORKS, with immediate possession, within 2½ miles of Calstock and the navigable River Tamar, and ½ mile from the siding of the Cornwall Minerals Railways, and 7 miles from Tavistock.

MESSRS. ANDREW AND SON are instructed to OFFER FOR SALE, BY PUBLIC AUCTION, at the Bedford Hotel, Tavistock, on Wednesday, September 25, at Three P.M., subject to such conditions as will then be produced, and can be seen at the offices of the undermentioned solicitors seven days previous to the sale, in One or more Lots (as may be determined on at the time of sale), ALL that VERY VALUABLE PROPERTY, with ENGINES and PLANT, now worked and known as the

CALSTOCK FIRE-BRICK AND FIRE-CLAY WORKS COMPANY (LIMITED),

Extending over 23 acres of land, which is copyhold of the Manor of Calstock.

The whole of the subsoil of the land is a bed of clay of excellent quality. The bricks and tiles manufactured by this company are well known as affording great resistance to frost and heat, and the fire-bricks are stated to be capable of standing a greater heat than the Stourbridge and other well known bricks, and are greatly in demand.

The whole of the kilns, flues, and drying sheds, which are substantially constructed, have been erected with a view of producing first-class bricks and tiles at the smallest possible cost.

The machinery, made especially for these works, and put in place partly by the well-known firm of Nicholls and Williams, Tavistock, is in capital working order, and capable of producing about 20,000 bricks per day; and the manager's house and offices, with weighing machine, render the whole works very complete.

The situation of the property is very favourable for carrying out the manufacture of fire-bricks and tiles, as the distance from the navigable River Tamar is only 2½ miles.

Printed particulars and plans will shortly be published, and can be obtained of the Auctioneers, 5, Courtenay-street, Plymouth; of Messrs. KELLY and WOLFERSTAN, Solicitors, Plymouth; or of Messrs. MAXWELL and WELDON, Solicitors, Dublin.—Dated July 23rd, 1878.

PEMBROKESHIRE.

SALE OF VERY VALUABLE FREEHOLD FARMS AND VEINS OF SLATE IN THE PARISH OF LLANRIAN.

MESSRS. GOODE AND OWEN have been favoured with instructions to OFFER FOR SALE, BY PUBLIC AUCTION, at the Castle Hotel, Haverfordwest, on Saturday, the 21st day of September next, at Two for Three o'clock, the following

FREEHOLD PROPERTY,

In Two Lots—viz.,

LOT 1.—The very valuable and important FARM OF BARRY ISLAND, otherwise ISLAND OF BARRY, comprising a capital Dwelling House, with commodious and substantial Farm Buildings, all in good repair, and 322A. 2R. 16P., or thereabouts, of very rich and productive Arable and Pasture Land, the whole being held by Mr. William Reynolds, under a lease for two (surviving) lives, aged respectively 57 and 53 years, or thereabouts, at the very low yearly rent of £223. This lot contains very extensive and valuable Veins of Slate and Slab.

LOT 2.—The rich and productive FARMS of VELINDRE and LLANRIAN, consisting of 188A. 3R. 27P. of very rich and productive Arable, Meadow, and Pasture Land, with a substantial Farm House and Outbuildings, all in good repair, and held by the representatives of Mr. John Prosser, under a lease for two (surviving) lives, aged respectively 68 and 40, or thereabouts, at the very low yearly rent of £220; also the Dwelling House and Premises, called the Croft House, in the village of Llanrian, held by Mrs. Rachael Morgan under a lease for three lives, aged respectively 65, 29, and 28 years, or thereabouts, at the yearly rent of £1: and a Cottage in the occupation of Mr. James Griffiths, or his undertenant, at the nominal rent of 6d.

Printed particulars and lithographic plans are in course of preparation, and, with any further information required, may be obtained of Messrs. GOODE and OWEN, Estate Agents; of Messrs. DAVIES and Co., Solicitors; and Messrs. J. and E. EATON EVANS, Solicitors; all of Haverfordwest.

21st August, 1878.

PRELIMINARY ADVERTISEMENT.

SOUTH WALES, CARDIGAN.

IMPORTANT MINING PROPERTY, with PLANT and MACHINERY.

IN THE HIGH COURT OF JUSTICE, CHANCERY DIVISION.—*RE* THE GREAT WEST VAN LEAD MINING COMPANY (LIMITED).

MESSRS. BAKER AND SONS WILL SELL, BY AUCTION, at the Mart, Tokenhouse yard, Bank of England, on Friday, October 18, in One Lot, by direction of His Honor the Master of the Rolls, all that valuable PROPERTY known as the

GREAT WEST VAN LEAD MINE,

Situate in the parish of Llanbadarn Fawr, in the county of Cardigan, on the high road, midway between Llanidloes and Aberystwith. It contains a vast amount of lead ore, and might, at a comparatively small outlay, be rendered a most lucrative speculation.

The sale will include all the valuable PUMPING and other MACHINERY, together with the expensive PLANT and IMPLEMENTS appertaining to the mine, the whole being in excellent working order.

Particulars and conditions of sale may be had of JAMES WADDELL, Esq., Public Accountant (the Official Liquidator), 11, Queen Victoria-street, E.C.; of J. JOHNSON WINSER, Esq., Solicitor, 70, Chancery-lane, W.C.; of Mr. W. BRAMWELL, at the Mine; and of the Auctioneers, 11, Queen Victoria street, E.C.

LEAD, &c., MINES IN MERIONETHSHIRE.

IN LIQUIDATION.

GLAN CLWYD LEAD MINING COMPANY (LIMITED).

TO BE SOLD, BY TENDER, the ESTATE and INTEREST of the above company under an Indenture of Lease (of which about 25 years are unexpired) of and in certain mines, &c., in or under certain lands and premises situate at Clegir Mawr and Bryn Halen, in the parish of Gwyddelwern, in the county of Merioneth, containing in statute measure 247A. 1R. 3P., or thereabouts.

Together with the MACHINERY, PLANT, and other EFFECTS belonging to the company on the premises, including a 40 ft. WATER-WHEEL, with segment, &c., for working patent self-acting jiggers; a BLAKE'S (or Marsden's) STONE BREAKER, and every other appliance for economically carrying on the mines.

The Derwen Station, on the Rhyl, Denbigh, and Corwen Railway, is within two miles of the mines.

The Liquidator does not bind himself to accept the highest or any tender.

Sealed tenders, endorsed "Tender for Glan Clwyd Mines," &c., and addressed to Messrs. BRETT and CRAVEN, Solicitors, 3, Kennedy-street, Manchester, will be received at their office up to Twelve at noon on Tuesday, the 10th day of September, 1878.

Authority for examining the property can be gotten, an inspection of the lease had, and a print of the particulars, conditions of sale, and form of tender, with any further information, obtained from the Liquidator, Mr. C. E. WILSON, No. 6, Stonewall-terrace, Cheetham Hill; or Messrs. BRETT and CRAVEN, Solicitors, No. 3, Kennedy-street, Manchester.

TO BE SOLD, SEVERAL VALUABLE GOLD MINES, in the neighbourhood of the ST. JOHN DEL REY MINES, BRAZIL.

The proprietors are prepared to allow two years' trial of the mines previous to purchasing.

Apply, "T. C. K.," MINING JOURNAL Office, 26, Fleet-street, E.C.

TO INVESTORS.

FOR SALE, A FIRST-CLASS SLATE QUARRY.

FOR SALE, the WHOLE or a PORTION of a FIRST-CLASS SLATE QUARRY, in DEVONSHIRE (area about 13 acres). The slate pronounced by competent judges to be equal to Delabole. Steam machinery, with all appliances and plant for working the quarry, are on the ground.

This quarry has been surveyed, drawings prepared, and most favourably reported upon by one of the first engineers of London connected with the Welsh quarries. The whole affords a splendid opportunity to investors having capital at their disposal, and the strictest investigation permitted.

Apply to F. R. STANBURY, Solicitor, 13, Princess square, Plymouth.

TO CAPITALISTS.

TO BE DISPOSED OF, on reasonable terms, an EXTENSIVE CLAY SETT, near ST. AUSTELL, CORNWALL. From discoveries made on the property there is evidence of a vast body of clay of good quality, ample water power, dues low, and overburden light, within a mile of railway, and adjoins a sett from which large quantities of clay have been sold at good prices, even during the recent depression.

Apply, Messrs. PHILP and Co., Auctioneers, St. Austell.

TO MINERALOGISTS AND GEOLOGISTS, &c.

FOR SALE, UPWARDS of SEVEN HUNDRED AND EIGHTY SPECIMENS of MINERALS, supposed to embrace samples of every known species, being from the collection of one of the best known and most extensively read mineralogists of the day, and include a sample of each specimen he holds. All are labelled, indexed, and classified, and WILL BE SOLD with the TWO CABINETS containing them at a very moderate value.

Apply to "Minerals," at Smith's Bookstall, Liverpool-street Station.

£10 REWARD.—I, CHARLES T. GILBERT, of the PHŒNIX BLUE BRICK AND TILE WORKS, Hingston Down, Gunnislake, Calstock, proprietor of a Patent granted to FREDERICK ARTHUR COWELL, of Gunnislake, Calstock, in the county of Cornwall, for the INVENTION of IMPROVED NON-POROUS and VITRIFIED BLOCKS, BRICKS, and other articles for various purposes, the said articles being manufactured from either or both the rocks known in the counties of Devon and Cornwall by the names of "killas" or "elvan," hereby give notice I will pay the above reward to any person or persons giving such information to my undersigned solicitor as will lead to the conviction of any person or persons INFRINGING the RIGHTS of the said PATENT. (Signed) CHAS. T. GILBERT.

Witness—CHRISTR. V. BRIDGMAN, Solicitor, Tavistock.

Dated this 3rd of September, 1878.

BARYTES.—FOR SALE, a MOIETY of a RICH BARYTES MINE, thoroughly proved.

The barytes is of the finest quality, the quantity practically inexhaustible, and commands a ready sale.

In addition to the above, there are valuable lead lodes in the property.

Address, "Barytes," MINING JOURNAL Office, 26, Fleet street, London, E.C.

ON SALE,—108 yards 15 inch diameter PUMPS, with delivery pipes. Bucket, door pieces, working barrels, windbores, slide pipes and nozzle, two pumping beams, two rocking legs, spur wheels, &c., making a complete set, and which have only been in use twelve months.

Apply to Mr. L. W. BATES, Rother Vale Collieries (Limited), Fence, near Rotherham.

ON SALE,—20 end and 5 side TIP WAGONS, 4 ft. 8½ in. gauge, in good working condition.

Apply to Mr. L. W. BATES, Rother Vale Collieries (Limited), Fence, near Rotherham.

ON SALE,—ONE 6 feet diameter SCHIELE'S PATENT BLOWING and EXHAUSTING FAN, with one 9 in. diameter cylinder, horizontal steam engine, with pedestal plates, &c., complete, in excellent condition.

Apply to Mr. L. W. BATES, Rother Vale Collieries (Limited), Fence, near Rotherham.

TO BE LET, the MINES lately worked by the GENERAL MINING COMPANY, at SILVERMINES and GURTNADYNE, in the parish of Kilmore, barony of Upper Ormond, and county of Tipperary; and also the ROYALTIES of all the TOWNLANDS, the property of Lord Dunalley, on which the said mines are situate, and which lie between the river at Silvermines, on the east, and the bounds of the townland of Gurtnadyne, on the west, and between the Silvermines and Shahee Road on the north, and the summit of the mountain on the south, which is the boundary of the said townlands on that side; and also the ROYALTIES of the part of the townland of Garryard, which are held by Lord Dunalley, by assignment from the lessee of W. Gleese, of Garryard, for 16 years of an unexpired term of 30 years; and also the ROYALTIES of West Shahee, held in fee by Lord Dunalley according to the bounds delineated in the deeds thereto relating; and all the buildings and other works, including THREE ENGINE HOUSES and STEAM ENGINES, and such portions of land as shall be included in the mining lease.

Copies of the proposed lease, which has been prepared, will be forwarded to any person applying on application to Lord DUNALLEY, Kilboy, Nenagh, the letter of application to contain an Order for £1 as payment for the said copy of lease.

[This advertisement will be repeated once a month for three months.]

FOR SALE, a FIRST-RATE LEAD and COPPER ROYALTY, in the county of CUMBERLAND.

Full particulars on application to Mr. W. GATH, Public Accountant, 2, Devonshire-steeet, Carlisle.

TO CAPITALISTS.

FOR SALE, a SILVER-LEAD MINE, over eight square miles in extent, averaging for nine years consecutively a produce of nearly 500 tons of lead ore (produced in 1877, 575 tons), complete with new pumping machinery, also with mechanical dressing floors, laboratory, offices, &c., &c. Large reserves, shallow depth, cheap labour, and materials. Good markets. Rights in perpetuity. Light dues (nominally 1-50th only). Good situation. Easy price and terms.

Address, "Alpha," MINING JOURNAL Office, 26, Fleet-street, London, E.C.

FOR SALE, at NEW PEMBROKE MINE, CORNWALL.—An excellent 80 in. cylinder PUMPING ENGINE, with FOUR good 12 ton BOILERS.

25 in. DRAWING ENGINE, and TWO BOILERS.
TWO SPARE BOILERS.
THREE IRON STAMPS AXLES.
100 fathoms FLAT RODS, 3½ inch.
A quantity of ROD PLATES and other MATERIALS.

Apply to Mr. JOHN POLKINGHORNE, PAR OFFICE, PAR STATION.

FOR SALE, a 48 ft. WATER-WHEEL, 6 ft. breast, with cast-iron rings, wood arms, backing, risers, and buckets, all firmly bolted together; massive cast-iron centre, bearings 18 in. long by 16 in. diameter; two cast iron sockets, bored to fit the shaft; two pedestal brasses and bed plates; two massive cast iron cranks, bored to fit the shaft, and keyed on with three holes to vary the lengths of the stroke from 9 ft. downwards. This wheel has two connecting rods, one on each side of the wheel, meeting at one point about 20 yards from the wheel; this connection is carried by a double traveller, which also acts as a balance bob; the end of the connection is carried by a strong wrought iron cross head on a pair of wheels. The 3½ in. wrought-iron rods are connected to the centre of the cross-head. There are about 30 yards of wood launders, to carry the water on the wheel; 260 fms. of 3½ in. round wrought iron rods, with hammered iron plus in joints, each rod 52 ft. long, with 56 pulleys to carry the above rods, with hammered iron gudgeons. At the end of the pumping-rods is connected a strong pumping-bob, with 18 in. timber strapped with wrought-iron plates, cast-iron caps, wrought-iron gudgeon, pedestals, &c., complete; with first piece of main rods, with wrought-iron straps, brasses, &c., complete. The wrought-iron work in this wheel and also the cast iron is in first-class condition.

Apply to E. J. BARTLETT, 30, Great St. Helen's, London, E.C.

THE "MIDLAND" HORIZONTAL ENGINES, new splendid design, and best construction.

4-horse power ENGINE, 6½-inch cylinder 10-inch stroke, with throttle valve, fly wheel (turned face), governor, feed pump, and double crank, with two bearings to shaft, which is made to take pulley or fly wheel on either right or left side. Price, £25.

Other sizes proportionately cheap.

ALEXANDER SMITH,
ENGINEER, DUDLEY.

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18 H.P. PORTABLE STEAM ENGINE with link motion reversing gear, ready for delivery; also gear to wind and pump.

A 9 h.p. VERTICAL STEAM ENGINE, with link motion, reversing gear (winding drum if required).

A 6-ft. PAN MORTAR MILL, VERTICAL ENGINE, and BOILER, with carriage and travelling wheels.

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JOHN HENSHALL WILLIAMSON, MANUFACTURER AND REFINER,

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STEPHEN BARKER begs to inform the Trade that he has the following articles for sale:—

REFINED METALLIC NICKEL.
REFINED METALLIC BISMUTH.
OXIDE OF COBALT.
GERMAN SILVER—IN INGOTS, SHEET, WIRE, &c.
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Geological examinations; reports on mining properties; surveys mines, rail roads, and canals, and superintends the workings of the same. Prepares estimates and plans for opening and working mines. Expert on mining questions before the Courts.

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MINING AGENT AND SHAREDEALER,

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Reliable information given respecting Welsh and Manx Mines.

A UNITED STATES PATENT HAS BEEN GRANTED to MR. HENRY SEWELL, M.E., for the REDUCTION or ELIMINATION of SULPHUR from Native Sulphur Ores, without Fuel, Water, or Iron Retorts. These furnaces are made of common stone, costing $200 each, and having a capacity of 200 tons of ore, at one time. They last many years. Five of these furnaces can be handled by two men—one by day, and the other by night that is, 1000 tons are worked at one time by two men.

Salt Lake City, Utah Territory, July 17, 1878.

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ALWAYS IN STOCK OR IN PROGRESS.

STATIONARY ENGINE.
From 1 to 30-horse power.
No building required.

PORTABLE HOIST.
1 to 30-horse power.
With or without Jib.

STEAM CRANE.*
15 cwts. to 20 tons.
For Wharf or Rail.

CONTRACTORS' LOCOMOTIVE.
9 to 27-horse power.
For Steep Inclines and Quick Curves.

SHIPS' ENGINE.
For Winding, Cooking, and Distilling.
Sanctioned by H. M. Government.

PUMPING AND WINDING ENGINE.
6 to 30-horse power.

* These cranes were selected by H.M. Commissioners to receive and send away the heavy machinery in the International Exhibitions 1862, 1871, and 1872.

Chaplin's Patent Improved Steam Excavator or "Navvy."
Steam and Hand Derrick and Overhead Travelling Cranes.
Engines and Boilers for Light Screw and Paddle Steamers.
Steam Cargo Barges, Steam Launches, and Yachts.

ALEX. CHAPLIN & CO., Patentees and Sole Manufacturers, Cranston Hill Engine Works, Glasgow.

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ENGINES OF EACH CLASS KEPT IN STOCK AND ALL OUR MANUFACTURES GUARANTEED AS TO EFFICIENCY, MATERIAL, AND WORKMANSHIP.

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IRON AND STEEL RAILS, of all sections, from 10 to 82 lbs per yard, new, defective, or second-hand.

POINTS AND CROSSINGS, FISH PLATES, BOLTS, NUTS, CHAIRS, AND SPIKES.

DERBYSHIRE, YORKSHIRE, HEMATITE, SCOTCH, AND COLD-BLAST PIG-IRON.

STEEL AND MALLEABLE IRON, of all qualities and sections.

Delivered at all Ports and Railway Stations in Great Britain.

WIRE ROPES.

JOHN AND EDWIN WRIGHT,

PATENTEES. ESTABLISHED 1770.

MANUFACTURERS OF EVERY DESCRIPTION OF IMPROVED

Patent Round and Flat Wire Ropes,

From the very best quality of Charcoal and Patent Steel Wire. Galvanised Wire, Ropes for Ships' Rigging, Galvanised Signal and Fencing Strand, Copper Rope Lightning Conductors, Colliery Ropes and Steam Plough Ropes made from the best Patent Improved Steel Wire.

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Hemp, Flax, Engine Yarn, Cotton Waste, Tarpauling, Oil Sheets, Brattice Cloth, Wagon Covers, &c., &c.

UNIVERSE WORKS, MILLWALL, POPLAR, LONDON.
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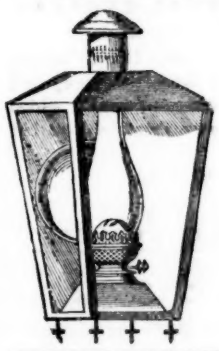
CITY OFFICE, No. 5, LEADENHALL STREET, E.C.

All communications to be forwarded to the BIRMINGHAM ADDRESS.

PATENT DUPLEX LAMPS

FOR COLLIERIES, IRONWORKS, &c.

SUITABLE FOR PIT BANKS, ENGINE HOUSES, &c., &c.



Each Lamp gives a light equal to 26 candles.
No breakage of Chimneys from heat.
Cottons last three months.
Will burn any mineral oil.

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LAMP MAKER & OIL MERCHANT,
LOWER TEMPLE STREET,
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N.B.—Lamps made suitable for every purpose.

The BEST SIGNAL BELL MADE for MINING PURPOSES.

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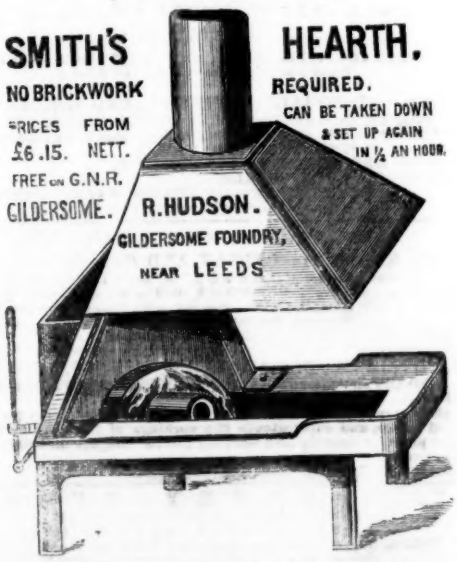

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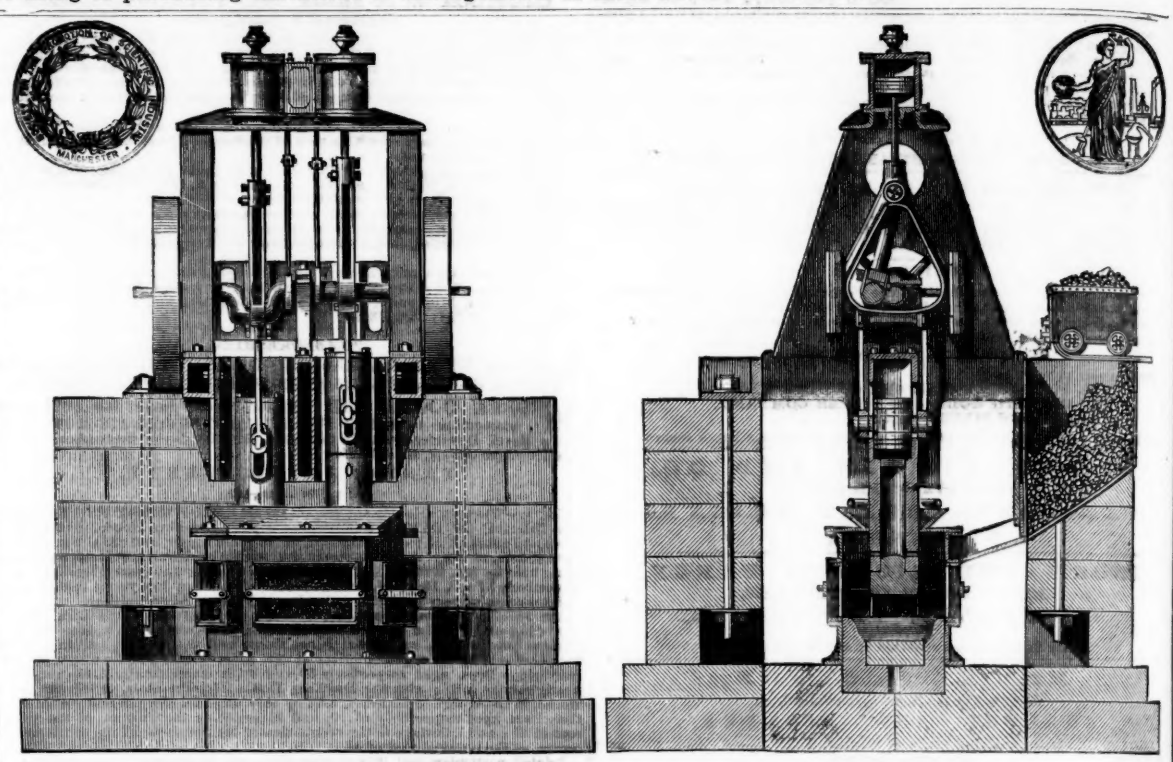
By JAMES IRELAND.

"Will be the means of preventing many disputes between pay clerks and colliers."—*Mining Journal.*

To be had on application at the MINING JOURNAL Office, 26, Fleet-street, E.C.



SHOLL'S PATENT DIRECT-ACTING PNEUMATIC STAMPERS,

For Pulverising Tin and Lead Ores, Gold Quartz, &c.,

SOLE MAKERS FOR CORNWALL,

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All objectionable features of "wear and tear" common to the original and existing Pneumatic Stamps (driven by belts) are removed in this patent, and leather glands and stuffing boxes entirely dispensed with, the pneumatic piston being reciprocated into the compressing chambers by direct-action from without. These double machines are guaranteed to be of the capacity of 36 ordinary heads of cam and lifter stamps, and engineers will at once see that, inasmuch as the power is directly applied to its work (without the medium of belts and other gearing), the minimum consumption of coal (all other conditions being equal) must be the result.

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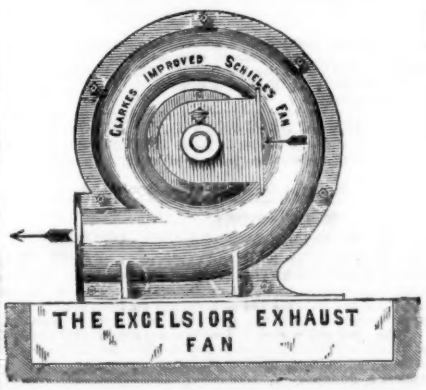

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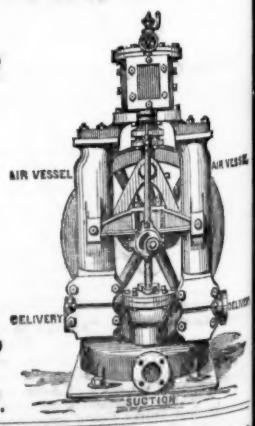

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BRITISH DIVIDEND MINES.

Shares	Mines.	Paid.	Last wk.	Clos. pr.	Total divs.	Per sh.	Last pd.
4000	Brookwood, c, Buckfastleigh	1 16 0	1	½ 1	3 16 0	0 2 0	Nov. 1875
2000	Bryn Alyn,* l, Denbigh	10 0 0	—		0 7 0	0 7 0	Jan. 1877
10000	Caron, l, Cardigan*	2 0 0	2½	2 2½	0 2 0	0 2 0	July 1878
1000	Carn Brea, c, t, Illogan†§	56 7 6	32	30 32½	308 0 0	1 0 0	Feb. 1878
400	Cashwell, l, Cumberland*	2 10 0	—		1 9 6	0 2 0	Aug. 1876
2450	Cook's Kitchen, t, Illogan†§	24 14 9	⅞	⅝ ⅞	11 17 0	0 7 6	Jan. 1875
10240	Devon Gt. Consols, c, Tavistock†*	1 0 0	2½	2 2½	116 15 0	0 5 0	July 1877
4296	Dolcoath, c, t, Camborne	10 14 10	25	23 25	112 16 3	0 5 0	Aug. 1878
5000	East Black Craig,* l., Scotland	5 0 0	—		0 10 0	0 10 0	Feb. 1877
300	East Darren, l, Cardiganshire	32 0 0	—		235 10 0	1 0 0	Aug. 1876
6400	East Pool, t, c, Illogan	0 9 9	10	8 9	15 11 9	0 2 6	Aug. 1878
40000	Glasgow Cara., c* [30,000 £1 p., 10,000 15s. p.]		1⅛	¾ 1¼	0 13 10	0 0 6	Aug. 1878
7500	Gorsedd and Merllyn Cons., l, Flint	2 10 0	4	3½ 4½	0 5 0	0 5 0	Aug. 1877
15000	Great Laxey, l, Isle of Man*	4 0 0	19⅛	18⅞ 19½	23 19 0	0 8 0	July 1878
615	Gt. Retallack, l, bl, Perranzabuloe	5 18 6	—		0 1 6	0 1 6	May 1876
6400	Green Hurth, l, Durham*	0 6 0	1	⅞ 1	1 18 0	0 3 0	Mar. 1878
20000	Grogwinion, l, Cardigan*	2 0 0	3 xd	2½ 3	0 14 10	0 0 10	Aug. 1878
9830	Gunnislake (Clitters'), t, c	5 5 0	2¾	2½ 2¾	0 13 9	0 1 0	Oct. 1876
60000	Holmbush, a, c, s-l, Callington*	1 0 0	—		0 4 6	0 0 6	Sept. 1877
2800	Isle of Man, l, Isle of Man*†	25 0 0	—		82 5 0	0 10 0	Feb. 1876
20000	Leadhills,* l, Lanarkshire	6 0 0	3	2½ 3	0 15 0	0 3 0	Mar. 1878
400	Lisburne, l, Cardiganshire	18 15 0	60	55 60	586 10 0	1 0 0	May 1878
14000	Llanidloes,* l, Montgomery	3 0 0	1⅛	¾ 1⅛	0 9 0	0 4 6	Nov. 1876
9000	Marke Valley, c, Linkinhorne	5 3 3	¾	½ ¾	7 15 0	0 2 0	Jan. 1876
10000	Mellanear Copper, Hayle*	2 0 0	4	3½ 4	0 5 0	0 3 0	July 1878
9000	Minera Mining Co., l, Wrexham*	5 0 0	10	8 10	67 13 2	0 2 6	May 1878
20000	Mining Co. of Ireland, cl, c, l*	7 0 0	—		23 17 6	0 2 6	Jan. 1878
444	North Busy, c, Chacewater	3 9 6	—		1 10 0	1 0 0	July 1877
10289	North Hendre, l, Wales	2 10 0	—		2 7 6	0 5 0	June 1878
30000	Panty Mwyn,* l, Mold (8794 iss.)	2 0 0	—	5 5½	0 3 0	0 2 0	Aug. 1878
6000	Penn-an-drea Con., t, Redruth	0 8 6	—		0 9 0	0 9 0	June 1877
5000	Penhalls, t, St. Agnes	3 2 6	1	¾ 1	3 18 6	0 2 0	July 1875
6000	Pennant, l, bar, North Wales*	5 0 0	5	4 5	0 10 0	0 5 0	Mar. 1878
45793	Penstruthal,* t, c, Gwennap	2 0 0	⅛	⅛ ⅛	0 2 8	0 0 8	Nov. 1875
18000	Prince Patrick,* s-l, Holywell	1 0 0	1¾	1⅛ 1¾	0 14 0	0 1 3	Jan. 1876
10000	Red Rock,* l, Cardigan	2 0 0	2⅛	2 2½	0 4 0	0 2 0	Jan. 1878
12000	Roman Gravels, l, Salop*	7 10 0	7¾	7½ 7¾	7 15 0	0 5 0	Mar. 1878
512	South Caradon, c, St. Cleer	1 5 0	60	40 60	743 10 0	1 0 0	Sept. 1878
6123	South Condurrow, t, c, Camborne‡	6 5 6	11	10 10½	4 1 0	0 8 0	Aug. 1878
12000	St. Harmon,* l, Montgom.	3 0 0	3¼	2¾ 3¼	0 12 0	0 3 0	July 1878
10000	So. Pr. Patrick,* s-l. (8000 sh. issued)	1 0 0	—		0 7 0	0 1 0	Oct. 1875
12000	Tankerville, l, Salop*	6 0 0	4	3½ 3¾	4 17 0	0 5 0	Dec. 1876
6000	Tincroft, c, t, Pool, Illogan†§	11 10 0	6⅛	5 6	50 8 6	0 5 0	May 1877
15000	Van, l, Llanidloes*	4 5 0	19	18 19	23 0 6	0 5 0	July 1878
3000	W. Chiverton, l, Perranzabuloe†	12 10 0	6½	5½ 6½	55 10 0	0 10 0	Feb. 1878
1788	West Poldice, St. Day	10 0 0	—		1 19 0	0 4 0	July 1876
512	West Tolgus, c, Redruth	95 10 0	52	50 52	31 0 0	1 5 0	Sept. 1878
2048	West Wheal Frances, t, Illogan	28 8 9	2¾	2½ 2¾	3 12 6	0 5 0	Oct. 1872
600	West Wheal Seton, c, Camborne†	47 0 0	10	7 8	446 0 0	0 15 0	Apr. 1878
12000	West Wye Valley,* l, Montgom.	3 0 0	2⅛	2 2½	0 12 0	0 3 0	Nov. 1877
1024	Wh. Eliza Consols t, St. Austell	18 0 0	—		19 10 0	1 10 0	Aug. 1878
2045	Wheal Jane, t, Kea	2 13 10	¾	½ ¾	8 5 0	0 5 0	July 1875
4295	Wheal Kitty, t, St. Agnes	5 4 6	2	1¾ 2	11 19 6	0 2 6	Dec. 1874
25300	Wh. Newton, a, c, s, t, Calstock*	1 0 0	—		0 8 6	0 4 0	Sept. 1877
80	Wheal Owles, t, St. Just§	161 5 0	27	26 27	522 10 0	4 0 0	Aug. 1872
3000	Wheal Peevor, t, Redruth	7 11 0	6½	5¼ 6¼	0 10 0	0 5 0	Aug. 1878
6000	Wheal Prussia, t, Redruth	0 5 0			0 4 0	0 1 0	July 1877
10000	Wye Valley, l, Montgomery*	3 0 0	2	1½ 2	0 10 6	0 4 6	Oct. 1876

FOREIGN DIVIDEND MINES.

Shares	Mines.	Paid.	Last wk.	Clos. pr.	Total divs.	Per sh.	Last pd.
85500	Alamillos, l, Spain*†	2 0 0	1¾	1¼ 1¾	1 19 3	0 1 0	April 1878
30000	Almada and Tirito Consol., s*†	1 0 0	½	¼ ½	0 6 3	0 1 0	May 1876
20000	Australian, c, South Australia†	7 7 6	1⅛	1⅛ 1¾	0 19 6	0 1 6	July 1877
10000	Battle Mountain,* c, (6240 part pd.)	5 0 0	—		0 10 0	0 10 0	Nov. 1872
15000	Birdseye Creek, g, California*	4 0 0	⅞	⅝ ⅞	0 14 0	0 2 6	June 1874
20000	Cape Copper Mining,*† So. Africa	7 0 0	31	29½ 30½	31 7 6	0 17 6	June 1878
34433	Cedar Creek, g, California*	5 0 0	⅜	⅛ ⅜	0 5 0	0 2 6	June 1877
35000	Cesena Sul. Co., Romagna, Italy*	10 0 0	—		0 18 0	0 2 0	Aug. 1878
15000	Chicago, s, Utah*	10 0 0	1	¾ 1¼	2 8 0	0 4 0	Nov. 1876
65000	Colorado United, s-l, Colorado*†	5 0 0	4⅛	4 4½	0 13 6	0 4 0	Jan. 1878
10000	Copiapo, c, Chili* (£20 shares)	16 15 0	—		7 11 5	0 3 0	May 1877
100000	Don Pedro North del Rey*†	0 16 0	⅜	¼ ⅜	2 5 9	0 2 0	Mar. 1872
23500	Eberhardt & Aurora, s, Nevada*†	10 0 0	4⅛	3¾ 4¼	1 8 0	0 3 0	Dec. 1877
70000	English & Australian, c† S. Aust.	2 10 0	1⅜	1⅛ 1⅜	2 15 9	0 1 0	Mar. 1877
30000	Flagstaff, s, Utah*	10 0 0	⅝	⅜ ⅝	4 2 0	0 5 0	July 1873
35000	Fortuna, l, Spain*†	2 0 0	5	4½ 5	6 19 10	0 5 0	April 1878
55000	Frontino & Bolivia, g, New Gran.*†	2 0 0	3	2⅝ 2⅞	0 2 6	0 1 6	Sept. 1878
30000	Gold Run, hyd.	1 0 0	—		0 2 4	0 0 4	Oct. 1872
68000	Kapunda Mining Co. Australia†.	1 3 0	—		0 2 4	0 0 6	June 1873
30000	Last Chance, s,* Utah	5 0 0	1	¾ 1	0 14 0	0 2 0	July 1873
15000	Linares, l, Spain*†	3 0 0	5¼	4¾ 5¼	17 7 10	0 5 0	April 1878
65000	London and California, g*†	2 0 0	½	¼ ½	0 1 0	0 1 0	July 1875
7887	Lusitanian, Portugal*† (£5 sh.)	3 10 0	—		1 11 6	0 1 6	Mar. 1873
5000	Mamm Copperopolis of Utah, c, s	10 0 0	—		0 5 0	0 5 0	Dec. 1872
5000	Mountain Chief, s, Utah*	10 0 0	—		0 4 0	0 4 0	Jan. 1873
10000	Pontgibaud, s-l, France†	20 0 0	30	28 30	25 19 11	0 11 11	June 1878
100000	Port Phillip, g, Clunes*†	1 0 0	⅝	½ ⅝	1 10 0	0 1 0	Jan. 1878
54000	Richmond Consols, s, Nevada*†	5 0 0	9	8½ 8½	6 1 6	0 10 0	Aug. 1878
40000	Santa Barbara,* g, Brazil	0 10 0	1½	1¼ 1⅛	0 4 9	0 1 0	April 1878
120000	Scottish Australian Mining Co.*†	1 0 0	2	1¾ 2	15 per cent.		May 1878
80000	Scottish Austral. Mining Co., New	0 10 0	⅞	¾ ⅞	15 per cent.		May 1878
12500	Sierra Buttes, g, California*†	2 0 0	1⅜	1¼ 1¾	1 18 0	0 2 0	Oct. 1877
60000	South Aurora, s, Nevada*	5 0 0	¼	⅛ ¼	0 14 2	0 2 0	Nov. 1873
£253000	St. John del Rey*† (£5 stock & multiples dealt in)			280 290	½ year. 17½ p. ct. for June 1878		
20000	Tolima, g, s* So. America	5 0 0	—		0 11 6	0 6 6	May 1874
25000	Victoria (London)*, g, Australia	1 0 0	¾	⅝ ¾	0 12 6	0 0 7½	Jan. 1878
15000	Western Andes, s,* New Granada	5 0 0	—		0 12 0	0 12 0	July 1876
91000	W. Prussian (5500 pref. sh. 10l. pd)	10 0 0	11	10½ 11	1 2 0	0 4 0	July 1878

NON-DIVIDEND FOREIGN MINES.

Shares	Mines.	Paid.	Last Pr.	Clos. Pr.	Last Call.
12000	Argentine, g, Argentine Republic	5 0 0	—		Fully pd
3000	Bellavista, s, Peru* (£10 shares)	10 0 0	—		Fully pd.
80000	Blue Tent, hyd., California	5 0 0	3	2¾ 3	Fully pd.
49935	Chontales, g, s, Nicaragua*†	2 0 0	⅝	½ ⅝	Fully pd.
16000	Condes of Chili, s-l	5 0 0	—		Fully pd.
20000	English Australian, g, Victoria*	1 0 0	⅞	⅝ ⅞	Fully pd.
85000	Excelsior Hydraulic Gold Washing Co., California*	6 0 0	—		Dec. 1871
100000	Exchequer, g, s, California*†	1 0 0	2s.	¼ ½	Fully pd.
40000	Holcombe Valley, g,* California	1 0 0	—		Fully pd.
8000	Hornachos,* s-l, Spain	10 0 0	14	13½ 14	Fully pd.
12000	Hultafall,* l, bl, Orebro, Sweden	5 0 0	5	4 5	Fully pd.
12000	Hunter Consolidated, s-l, Utah	10 0 0	—		Fully pd
20000	Imperial Brazilian Collieries, Brazil*	5 0 0	—		Fully pd.
100000	I. X. L., g, s, California*	1 0 0	—	⅛ ¼	Fully pd.
50000	Javali, g, Nicaragua*	2 0 0	9s.	7s. 9s.	Fully pd.
3500	La Manche, l, Newfoundland	10 0 0	—		Fully pd.
12000	Lanestosa,* l, z, Viscaya, Spain (£2 shares)	1 15 0	—		Mar. 1876
75000	Malabar, g, Colombia* (67165 issued)	1 0 0	¼	⅛ ¼	Fully pd.
40000	Malpaso, g, Colombia* (7400 pref. shares, fully paid)	1 0 0	⅜	¼ ⅜	Fully pd.
12000	Menzenberg, c, Honnef, Germany*	5 5 0	—		Fully pd.
4588	New Bensberg, i, l, Germany	5 0 0	—		Nov. 1876
66000	New Quebrada, c, Venezuela*	5 0 0	2	1¾ 2	Fully pd.
20000	New Zealand Kapanga, g, Coromandel*	5 0 0	1½	1 1¼	Fully pd.
3000	Oregon,* g, Oregon, U.S. (preference shares)	4 0 0	—	3½ 4	Fully pd
60000	Panulcillo, c, Chili*† (£80000 debentures)	4 0 0	¾	⅝ ¾	Fully pd.
8000	Pestarena United, g, Italy*†	3 0 0	6s.	4s. 6s.	Fully pd.
25000	Pitanqui,* g, Brazil (incl. 6000 sh. £1 fully paid)	0 5 0	¼	⅛ ¼	Aug. 1878
25000	Placerville,* g q, California	2 0 0	¼		Fully pd.
50000	Providencia and New Rosario, s, Mexico*	1 0 0	—		Fully pd.
40000	Ravenscliff, g, New Zealand; c, South Australia	1 0 0	—		Fully pd.
5000	Rica, g, Colombia* (40000 issued)	1 0 0	⅛	⅛ ¼	Fully pd.
£2,181,000	Rio Tinto,* c, Huelva, Spain	Stock	62	60 62	Fully pd.
100000	Rossa Grande, g, Brazil*† (£1 shares)	0 19 0	⅛	⅛	July 1872
30040	Russia Copper, Orenburg and Ufa*†	10 0 0	—		Fully pd
25000	San Pedro, c, Chili*	2 0 0	—		Fully pd.
10000	Silver Plume, s, Colorado*	1 0 0	—		Fully pd.
30000	Tecoma, s, Utah*	10 0 0	⅝	⅜ ⅝	Fully pd.
43174	United Mexican, s, Mexico*†‡	29 0 3	4	3 3½	May 1878
14000	Utah, g, s-l, Utah*	5 0 0	—		Fully pd.
10000	Virneberg, c Rheinbreitbach, Germany* (£2 shares)	1 15 0	—		Jan. 1878
75000	Yorke Peninsula, c, South Australia	1 0 0	⅛	¼ ¼	Fully pd.
40000	Yorke Peninsula, c, South Australia Preference	1 0 0	1⅛	⅞ 1⅛	Fully pd.

§ Have made calls since last dividend was paid

FOREIGN AND MISCELLANEOUS STOCKS, BONDS, LOANS, AND TRUSTS.

	Closing Prices	
Argentine, 1868 6 per cent.	72½	73½
Bolivia, 6 per cent.	27	28
Brazilian, 1865, 5 per cent.	91	93
Chilian, 1866, 7 per cent.	95	98
City of Providence, 5 p.c. coupon bnds	101	103
Egyptian, Gov. preference	75	76
Do., unified debt, scrip	55	55½
Do., 7 per cent., V.M.L.	77	79
Do., per cent. guar.	82	85
Do., K. Daira Sanieh	54	56

	Closing Prices.	
Foreign and Col. Gov. Trust, 6 p. ct.	75	80
Do., 5 per cent., 2d issue	65	70
Do., 6 per cent., 3d issue	63	68
Do., 1872, 4th issue	63	68
Do., 1873, 5th issue	58	62
Peruvian, 1870, 6 per cent.	13¾	14¾
Do., 1872, 5 per cent.	11½	12
Russian, 5½ per cent. L. Mort.	—	
Spanish, Quicksilver Mort., 5 p. ct.	96	98
United States Mort. 6 per cent.	100	102

NON-DIVIDEND MINES.

Shares	Mines.	Paid.	Last wk.	Clos. pr.
40000	Aberdaunant, l, Llanidloes*	1 0 0	⅜	⅛ ⅜
2560	Aberllyn,* l, bl, Carnarvon	10 0 0	11	10 11
10000	Aberystwith,* s-l, Cardigan	5 0 0	—	
80	Albion, t, Cornwall	100 0 0	—	
7800	Alvig. & Burng.,* t, St. Aust.	3 0 0	1⅜	1¼ 1¾
12000	Assheton, l, Carnarvonshire*	5 0 0	1	¾ 1
50000	Ballycummisk,* c, Schull	2 0 0	—	
12000	Bedford Unit.,* c, Tavist. (1l. liab.)	0 1 0	¼	⅛ ¼
30000	Bettws y-Coed,* l (20,000 issued)	1 0 0	⅞	⅝ ⅞
800	Blaen Caelan,* l, Cardigan	3 0 0	4¾	4⅛ 4¾
3937	Blue Hills, t, c, St. Agnes	3 16 6	⅜	⅛ ⅜
30000	Bodidris,* l, bl, Denbighshire	1 0 0	1⅜	1⅛ 1⅜
1000	Bollihope Vale,* s-l, Durham	5 0 0	—	
200	Botallack, t, c, St. Just‡	123 15 0	—	
2000	Bowden Hill,* mn	1 0 0	—	
6000	Bradwell Moss Rake	1 0 0	1	¾ 1
256	Browngelly, c, St. Neot	2 0 0	2⅛	2¼ 2½
50000	Cambrian,* s-l, c, Cardiganshire	2 0 0	3½	3¼ 3½
20000	Central Foxdale, l, I. of Man* (2l. sh.)	1 5 0	—	
10000	Central Van,* l, bl, Llanidloes	5 0 0	—	
5120	Clementina, l, Llanrwst*	1 0 0	1¾	1¼ 1¾
7500	Combellack,* t, Wendron	2 0 0	—	
6000	Combmartin, s-l, North Devon	0 7 0	⅛	⅛
24000	Court Grange, s-l, Cardiganshire	1 0 0	1⅛	1 1⅛
15000	Cwm Dwyfor,* c, s-l, Wales	1 0 0	—	
5000	Ditto, 12½ per cent. pref.	1 0 0	—	
3000	Cwmystwith (New) [5l. shares]	4 0 0	—	
1180	D'Eresby Cons., l, bl, Carnarvon	10 0 0	—	10 11
512	D'Eresby Mountain, l, bl, Llanrwst	20 0 0	—	75 85
20000	Denbighshire Consolidated, l*	3 0 0	1½	1¼ 1¾
12000	Derwent,* l, Durham	4 0 0	—	
10000	Dubby Syke, l, Durham*	0 15 0	—	
6144	East Caradon, c, St. Cleer‡	2 19 0	—	¾ ⅞
4000	East Chiverton, l, Perranzabuloe	7 1 0	3	1⅜ 1⅛
3000	East Craven Moor*, l, Pateley Bdge	10 0 0	9	9 10
6000	East Goginan, l, Cardigan	2 0 0	—	
8000	East Van, l, Llanidloes*	5 0 0	5¾	3½ 3¾
1722	East Wh. Lovell, t, Helston	9 1 0	⅛	⅛ ¼
10000	Elgar,* s-l, Cardiganshire	1 0 0	⅜	⅜ ⅝
10000	Frosterley,* l, Durham	1 0 0	1⅛	1⅛ 1¼
3950	Gawton, c, Tavistock	4 5 6	⅜	⅛ ⅜
12000	Glan Clwyd,* l, Gwyddelwern	1 0 0	—	
14000	Glenroy,* s-l, Isle of Man	4 5 0	¾	⅝ ¾
10000	Glyn,* l, Llanidloes	2 0 0	¾	½ ¾
12000	Goginan, & Level Newydd, Card., l	2 10 0	—	
20000	Goreu,* s-l, Carmarthen	1 0 0	1	¾ 1
20000	Gt. E. Foxdale, l, I. of Man (1l. sh)	0 18 0	—	
12000	Great Holway,* l, Flintshire	5 0 0	5½	4¾ 5¾
9500	Great Pant-y-Pydew, l, Holywell	2 0 0	—	
6000	Gt. Wheal Eleanor, t, North Bovey	1 17 6	2	1¾ 2
6000	Great Wheal Rodd,* s-l, Cornwall	0 10 0	1	¾ 1
10000	Harehope Gill,* l, Durham (£1 sh.)	0 5 0	—	
600	Hartington Moor,* carb. l, Derby	1 0 0	2	1½ 2
6400	Harwood,* l, Durham	0 15 0	—	
1024	Herodsfoot, l, near Liskeard†	8 10 0	4½	4 4½
18000	Hingston Down, c, Calstock*†	0 6 0	—	
5000	Hush Eisteddfod Minera,* l	2 0 0	—	
2500	Killaloe, sl, Tipperary‡	1 0 0	—	
5000	Killifreth, t, Chacewater	2 3 6	1	¾ 1
25000	Kingston Con., s-l, Stoke Climsland.	1 0 0	—	
	Ditto, preference	1 0 0	1⅛	1 1⅛
12000	Ladywell,* l, Salop	2 10 0	1	¾ 1
12000	Ditto, 10 per cent. pref., 1l. each	0 10 0	⅜	⅛ ⅜
2500	Levant, c, t, St. Just	10 4 6	—	
6000	Livingstone Consols, t, St. Agnes	0 10 0	1	¾ 1
5120	Lovell, t, Wendron	0 16 0	2	1½ 2
25000	Llanrhaiadr, l, Montgomery*	2 0 0	—	
30000	Llanrwst,* l, Carnarvon	2 0 0	2	2 3
24	Mawston,* l, South Wales	50 0 0	65	55 65
6000	Medlyn Moor, t, Wendron	2 9 10	—	
11000	Melyndw, l, Cardigan*	[illegible]	1¼	¾ 1¼
7000	Mid Devon Copper*	0 6 8	1¼	1 1¼
21000	Ditto	0 2 6	1	¾ 1
8000	Mineral Corp. of Great Britain*	10 0 0	11	10 11
11000	Morydd Gorddu, l, Cardigan* (Red.)	5 0 0	5	2¼ 2½
12000	Morfa Du, z, g, s, Anglesea	0 12 6	⅞	⅝ ⅞
25000	Nant-y-Ronen, s-l, Cardigan*	1 0 0	—	
15000	Nascent Copper*	1 0 0	—	
4768	New Bronfloyd,* l, Cardigan (5l. sh.)	3 16 0	4½	4⅜ 4½
8000	New Dolcoath, t, c, Camborne*	3 0 0	1¼	1⅛ 1¼
20000	New East Foxdale, s-l, Isle of Man.	0 15 0	—	
1492	New Hendra, t, Breage	3 9 0	—	
3200	New South Merllyn, l, Flint*	2 10 0	⅜	¼ ½
3500	New Tincroft,* t, Lelant	0 0	3	2½ 3
5000	New Wheal Emma, c, Buckfastleigh	2 0 0	—	
4000	North Cornwall,* l, Cornwall	5 0 0	5⅜	5⅛ 5⅜
30000	North Laxey,* Isle of Man	1 0 0	4s.	2s. 4s.
2000	North Levant, t, c, St. Just‡	12 16 0	1	¾ 1
50000	North Molton, c, mn, i, Devon	1 0 0	1	1
20000	North Prince Patrick,* l, Holywell.	1 0 0	—	
5936	North Treskerby, c, St. Agnes	5 17 10	—	
6400	Oola Hills,* s-l, Limerick	5 0 0	—	
12000	Pandora,* l, Carnarvon	2 0 0	¾	¾ 1
6000	Park Valley,* s-l, North Devon	0 4 0	1	¾ 1
6000	Parracombe, s-l, Devon	0 5 0	¼	½ ⅝
16923	Parys Mountain,* c, Anglesea	3 0 0	⅜	¼ ⅜
12000	Phœnix, & W. Phœnix, t, c, Link.§	5 7 3	2	1½ 2
4000	Pateley Bridge, l, Yorkshire	5 0 0	4¾	4 4¾
7000	Picton,* s-l, Holywell, fully paid	1 0 0	5	4 5
12000	Plynlimmon, l, Llanidloes*	2 0 0	6s.	4s. 6s.
10000	Port Nigel,* s-l, Carnarvonshire	2 0 0	½	¼ ⅛
2000	Prideaux Wood, t, Llanivery	5 0 0	—	
5182	Prince of Wales, c, Calstock‡	2 6 0	1s.	6d. 1s.
6000	Relistian Consols, c, Gwinear	0 10 0	⅜	⅛ ⅜
15000	Rookhope, l, Durham*	1 10 0	⅞	⅝ ¾
4200	Snowbrook, s-l, Montgomery	5 0 0	—	
1000	So. Cwmystwith, l, Cardiganshire.	2 0 0	3	2½ 3
4000	South Darren, l, Cardigan*	1 10 0	2⅛	1⅞ 2⅛
30000	South de Eresby Mountain, l	1 0 0	1⅛	1⅛ 1¾
512	South Dolcoath, c, t, Redruth	2 5 0	—	
5000	So. Molton Cons., s-l, No. Devon	3 6	—	
18000	South Roman Gravels, l*	1 10 0	¼	⅛ ¼
6000	South Roskear, t, c, Camborne	7 5 0	—	
6000	South Tolcarne, t, c, Camborne	2 5 6	¾	⅛ ¾
937	South Wheal Crofty, c, Illogan	40 0 10	6	4 5
4500	South Wh. Frances, c, Illogan†	7 12 4	4	3⅞ 4½
6000	St. Lawrence, Amal., l, Flintshire*	2 0 0	—	
10000	St. Patrick, l, Halkin, Holywell*	1 0 0	1¼	1 1¼
6000	Success, &c., l, Derb. (12,000l. called)	1 0 0	—	
16000	Sunnyside,* l, Durham	2 0 0	—	
30000	Talybont, s-l, Cardiganshire	1 0 0	1¼	1 1¼
6400	Teesdale,* l, Durham	1 0 0	½	⅜ ½
14000	Teign Valley, l, bar., Bridford	1 0 0	—	
10000	Temple, l, Cardigan*	1 0 0	—	
10000	Tolgus Consols,* c, Redruth	5 0 0	3⅛	3¼ 3⅜
8000	Treleigh Wood, t, Redruth	6 1 0	—	
12000	Trethellan, s-l, Crantock*	2 0 0	—	
640	Truro*, l, Nerquis, Flintshire	10 0 0	—	
10000	Tyn-y-Fron,* l, Cardigan	1 0 0	1¾	1⅜ 1⅝
1000	Vaughan*, l, Cardiganshire	10 0 0	—	
18000	Victor,* l, Flintshire (£1 share)	0 5 0	—	
12000	West Assheton, l, Carnarvon	1 0 0	⅞	⅝ ⅞
6000	West Basset, c, Illogan†‡	6 13 4	⅞	⅝ ⅞
5500	West Combmartin, s-l, North Devon	1 0 0	—	
7000	Ditto	0 2 6	—	
3000	W. Craven Moor, l, Pateley Bridge*	10 0 0	8	9 10
5000	West Godolphin, t, c, Breage	2 16 0	1⅛	1 1⅛
12000	West Goginan,* Cardiganshire	2 0 0	⅜	⅛ ⅜
10000	West Llangynog, s-l, Montgomery	2 0 0	—	
3000	West Mary Ann, l, Menheniot	0 12 6	¾	½ ¾
50000	West Milwr, s-l, Flint	1 0 0	—	
5000	West of England Granite Company.	2 0 0	2	
20000	West Pateley Bridge, l, Yorkshire	1 0 0	2	1½ 2½
1000	West Roskear, t, s-l, bl, c, Camborne.	5 10 0	—	
12000	West Tankerville,* l, Salop	3 0 0	½	¼ ½
3000	Ditto, 15 per cent. pref.	3 0 0	—	
3000	West Wheal Peevor, t, Redruth	0 10 0	—	
6000	Wheal Agar, c, Illogan	12 0 0	4	3½ 4
512	Wheal Basset, c, Illogan‡	28 2 6	3	2 3
6000	Wheal Coates, t, St. Agnes	2 0 0	—	
2635	Wheal Comfort, c, Gwennap	1 7 0	—	
6000	Wheal Creoor, c, Tavistock	4 3 0	¾	½ ¾
5179	Wheal Grenville, c, Camborne	3 16 6	2¼	2 2½
12000	Wh. Mary Hutchings,* t, Plympton‡	1 18 6	2⅛	2 2⅛
12000	Wheal Russell, c, Tavistock	2 1 6	—	
4096	Wheal Uny, t, c, Redruth	14 0 6	1	⅞ 1
2324	White Cliff,* l, Llanrwst	5 0 0	—	
25000	Wicklow, c, sul, i, Wicklow	2 10 0	—	

b, blende; cl, coal; c, copper; g, gold; l, lead; s, silver; sl, slate; s-l, silver-lead; t, tin; z, zinc.

* Limited Liability Companies; † quoted on the Stock Exchange; ‡ have paid dividends.

IRON AND COAL COMPANIES.

Shares.	Company.	Paid.	Prices.		
£100	Abbot, John, and Co. [L.]	£75 0 0	17	16	dis.
15	Albion Steel and Wire Co. [L.]	14 0 0		—	
5	Alltami Colliery Co. [L.]	5 0 0	3	3½	
100	Ashbury Co. [L.]	90 0 0	55	60	dis.
10	Bagnall, John, and Sons [L.]	10 0 0	1	1⅛	
10	Benhar Coal Co. [L.]	10 0 0	5½	5⅛	
50	Bilbao Iron Ore Co. [L.]	50 0 0	23	25	
10	Bilson & Crump Meadow Coll. Co. [L.]	10 0 0	4½	5	
4	Blaen Cwmbach Coal Co. [L.]	4 0 0		—	
50	Blaenavon Iron and Steel Co. [L.]	50 0 0		—	
100	Bolckow, Vaughan, and Co. [L.]...A	50 0 0	9	11	pm.
50	Bowling Iron Co. [L.]	50 0 0		—	
50	Britannia Ironworks [L.]	25 0 0			
50	Brown, Bailey, and Dixon [L.]	40 0 0	10	9	dis.
100	Brown, John, and Co. [L.]	70 0 0	11⅛	11	dis.
5	Cakemore Colliery Co. [L.]	5 0 0	5¼	5⅛	
100	Cammell and Co. [L.]	80 0 0	9	8⅛	dis.
20	Cannock and Huntington Coal [L.]	10 0 0	9	8⅛	dis.
10	Cardiff & Swansea St. Coal Co. [L.]	9 0 0	⅛	⅜	
10	Cardigan Steel and Wire Co. [L.]	8 10 0		—	
10	Central Swedish Iron and Steel [L.]	10 0 0	1	2	
5	Chapel House Colliery	5 0 0	3	3⅛	
50	Charlton Iron Co. [L.]	50 0 0	8	10	
50	Chatterley Iron Co. [L.]	45 0 0	35	33⅛	dis.
10	Chillington Iron Co. [L.]	10 0 0	2½	3	
10	Consett Iron Co. [L.]	7 10 0	10½	11	pm.
1	Consett Spanish Ore [L.]	1 0 0	⅛	⅛	dis.
50	Cooke, William, and Co. [L.]	40 0 0	34	32	dis.
20	Darlington Iron Co. [L.]	12 10 0	⅛	⅛	
50	Davy Brothers [L.]	22 10 0	1	2	pm.
5	Diamond Fuel Co. [L.]	5 0 0		—	
23	Ebbw Vale Co. [L.]	20 0 0	11⅛	10⅛	dis.
100	Fox, Samuel, and Co. [L.]	80 0 0	30	32	
10	General Mining Ass. [L.] (£1 returned)	9 0 0	2⅛	3⅛	
20	Great Western Coal Co. [L.]	17 0 0		—	
2	Gwyngwillim Colliery Co. [L.]	2 0 0		—	
15	Hopkins, Gilkes, and Co. [L.]	11 0 0	10	9	dis.
60	Knowles, Andrew, and Sons [L.]	17 0 0	3¼	3	dis.
10	Llay Hall Coal, Iron, & Firebrick [L.]	10 0 0	3	1	dis.
5	Littledean Woodside Coll. Co. [L.]	5 0 0		—	
50	Llynvi, Ogmore, & Tondu Co. [L.]	50 0 0	5	5⅛	
10	Lydney and Wigpool Iron Ore [L.]	8 5 0	11	10	dis.
10	Marbella Iron Ore Co. [L.]	10 0 0	7⅛	7	dis.
6	Mersey Steel and Iron Co. [L.]	5 0 0		—	
10	Midland Iron Co. [L.]	5 0 0	1⅛	1	dis.
5	Mold Argoed Colliery Co. [L.]	5 0 0	3	2½	dis.
10	Monkland Iron and Coal Co. [L.]	10 0 0	7⅛	7	dis.
4	Mwyndy Iron Ore [L.]	3 10 0	2⅛	2	dis.
100	Nant-y-Glo and Blaina (8 p. c. pref.)	100 0 0	22⅛	25	
3	Nerbudda Coal and Iron [L. & Red.]	2 0 0	1	1⅛	pm.
20	New Sharlston Collieries [L.] Pref.	20 0 0	18	18	dis.
10	Newport Abercarn Coal Co. [L.]	10 0 0	2⅛	2⅛	
10	Northmptn. Coal, Iron & Wagon [L.]	8 0 0		—	
10	Northfield Iron Co. [L.]	8 10 0	⅛	7⅛	dis.
1	Norton Green Coal Co. [L.]	1 0 0		—	
35	Palmer's Shipbuilding and Iron [L.]	25 0 0	15⅛	15	dis.
100	Parkgate Iron Co. [L.]	65 0 0	15	13	dis.
20	Patent Nut and Bolt Co. [L.]	14 0 0	7	7⅛	pm.
20	Patent Shaft and Axletree [L.]	10 0 0	1	⅜	dis.
20	Pelsall Coal and Iron [L.]	17 10 0	14	13	dis.
50	Phœnix Bessemer Co. [L.]	40 0 0			
50	Rhymney Iron Co. [L.]	50 0 0	16	16⅛	
10	Richards and Co. [L.]	10 0 0		—	
10	Sandwell Park Colliery Co. [L.]	10 0 0	15⅛	16	
10	Ditto New	5 0 0	3⅛	4	pm.
100	Shotts Iron Co. [L.]	100 0 0	90	92	
100	Sheepbridge Iron and Coal [L.]	55 0 0	15	14	dis.
50	Silkstone & Dodworth Cl. & Iron [L.]	33 0 0	24	23	dis.
20	Skerne Ironworks [L.]	20 0 0	15	14⅛	dis.
50	Somorrostro Iron Co. [L.]	50 0 0		—	
25	South Wales Coal Co. [L.]	21 0 0	6⅛	7⅛	
100	Staveley Iron and Coal Co. [L.]	60 0 0	13	14	pm.
100	Ditto ditto New	10 0 0	2⅛	3⅛	pm.
10	Swansea Valley Steam Coll. Co. [L.]	6 0 0			
100	Thames Iron Company	100 0 0		—	
50	Tredegar Iron and Coal Co. [L.]	20 0 0	11	10	dis.
25	Ditto B. shares	25 0 0	21	22	
20	Ulverston Mining Co. [L.]	12 0 0	5	3	dis.
10	Vancouver Coal [L.]	6 0 0	1⅛	1⅛	dis.
100	Vickers, Sons, & Co. [L.]	100 0 0	30	35	pm.
50	Welsh Ironworks Co. [L.]	50 0 0			
25	W. Cumberland I. and Steel [L.]	20 0 0	12½	13	
10	West Mostyn Coal [L.] (12 p.c. pref.)	5 0 0		—	
5	West Swansea Colliery Co. [L.]	5 0 0		—	
10	Whitehaven Iron Co. [L.]	10 0 0		—	
100	Wigan and Whiston Coal Co. [L.]	70 0 0		—	
100	Wigan Coal and Iron Co. [L.]	75 0 0		—	

WAGON COMPANIES.

10	Birmingham Wagon Co. [L.]	10 0 0	15¼	16
10	Ditto, 2nd issue	4 0 0	1⅛	1⅛ pm
10	Ditto, pref., 6 per cent.	10 0 0	11⅜	12
20	British Wagon Co. [L.]	10 0 0	1	1⅛ pm
10	Gloucester [L.]	10 0 0	7⅛	8
10	Ditto, 5th issue	5 0 0	1⅛	1⅛ dis.
10	Met. Rail. Car. and Wagon Co. [L.]	5 0 0	2⅛	3 pm
5	Ditto, pref., 6 per cent.	2 0 0	⅜	¼ pm
10	Midland	10 0 0	5	5⅛ pm
20	North Central Wagon Co.	20 0 0	22	23
5	Rail. Car. [L.] (Oldbury)	5 0 0	5	5
5	Ditto, pref., 6 per cent.	5 0 0	4⅜	5⅛
20	Sheffield Wagon Co. [L.]	15 0 0	1⅜	2
10	Yorkshire Wagon Co. [L.]	10 0 0	3⅜	4 pm

TELEGRAPH COMPANIES.

"St."	Anglo-American	100 0 0	60¾	61⅛
10	Brazilian Submarine	10 0 0	6⅝	6⅞
20	Direct United States Cable	20 0 0	13⅛	13⅜
10	Eastern	10 0 0	7⅛	7⅜
10	East. Exten., Australia and China	10 0 0	7⅛	7⅜
10	Great Northern	10 0 0	8⅛	8⅜
25	Indo-European	25 0 0	20	21
10	Mediterranean Extension	10 0 0	3	3⅛
8	Reuters	8 0 0	10	11
Stk.	Submarine	100 0 0	217	222
10	West India and Panama	10 0 0	2	2⅛
20	Western and Brazilian	20 0 0	3⅛	4⅛
$1000	Western Union, 7 per cent. Mort. Bonds	$1000	114	118

MISCELLANEOUS.

Stk.	Atlantic and Great Western Leased Lines, Rental Trust	100 0 0	43	45
25	Australian Agricultural	21 10 0	80	83
25	Austral. Mort. Land and Finance [L.]	5 0 0	6¼	6¾
10	Avonside Engine [L.]	7 0 0	7	8
Stk.	Baltimore and Ohio, 6 per cent.	100 0 0	106	108
10	Brighton Aquarium [L.]	10 0 0	8½	9½
Stk.	Cent. of New Jersey Con. Mort.	100 0 0	85	87
Stk.	Cent. Pacific of Calif., 1st Mort. 6 p.c.	100 0 0	107½	108½
25	City of London Real Property [L.]	12 0 0	2¼	3¼
5	Diamond Rock Boring	4 10 0	3¼	3¾
15	English and Foreign Credit	8 0 0		—
16	Fore Street Warehouse [L.]	14 0 0	10½	11½
15	Foster, Porter, and Co. [L.]	10 10 0	20½	21½
5	Gen. Phos. & Chem. Works Co. [L.]	5 0 0		—
1	Greenhill [L.]	1 0 0		—
5	Kit Hill Tunnel [L.]	1 0 0		—
17	Hudson's Bay Company	17 0 0	10¼	10¾
10	Huntington Copper and Sul. Co.	9 0 0	6¾	7¼
Stk.	Illinois Central, $100 shares	100 0 0	82	83
Stk.	Illinois & St. Louis Bridge, 1st Mort.	100 0 0	70	75
Stk.	Ditto, 2nd Mort., 7 per cent.	100 0 0	32	37
Stk.	Illinois Cent. Sinking Fund, 5 p. cent.	100 0 0	99	101
Stk.	Ditto, 6 per cent.	100 0 0	109	111
7½	Imperial Credit [L.]	7 10 0	7¼	7¾
—	Ditto, Surplus Certificate	—	6½	7
Stk.	Lehigh Val. Con. Mort., A, 6. p. cent.	100 0 0	101	103
10	Milner's Safe [L.]	10 0 0	8½	9½
25	National Discount [L.]	5 0 0	10¼	10¾
Stk.	N. Cent. Rail. Con. Mort., 6 per cent.	10 0 0	84	86
10	Pawson and Co. [L.]	8 0 0	¾	1¼
50	Peninsular and Oriental Steam	50 0 0	39	41
Stk.	Pennsyl. Gen. Mort. 6 p. cent., 1910.	100 0 0	107½	108½
Stk.	Ditto, Con. Sink. Fund, 6 p. ct., 1905	100 0 0	94	96
Stk.	Scottish Aust. Investment Company.	100 0 0	200	205
Stk.	Ditto, 6 per cent. Preference	100 0 0	122	127
10	Silber Light (ord. sh.)	10 0 0		—
20	Suez Canal shares	20 0 0		
12	Telegraph Construc. & Mainte. [L.]	12 0 0	30½	31
5	Ditto, Second Bonus Three per Cents	5 0 0	2⅜	3⅛
10	Tharsis Sulphur and Copper Co.	10 0 0	23⅛	24⅛
Stk.	Union Pacific Land Grant, 1st Mort.	100 0 0	107	109
Stk.	Union Pacific Railway, 1st Mort.	100 0 0	107	109

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